



50405/B











18695

THE  
COMMENTARIES  
UPON THE  
APHORISMS  
OF

Dr HERMAN BOERHAAVE,

The late Learned Professor of Physic in the  
University of LEYDEN,

CONCERNING

The KNOWLEDGE and CURE of the several  
DISEASES incident to HUMAN BODIES.

By GERARD VAN SWIETEN, M. D.

Translated into ENGLISH.

The SECOND EDITION.

VOL. VII.

LONDON:

Printed for ROBERT HORSTFIELD, in Ludgate-Street;

AND

THOMAS LONGMAN, in Pater-Noster-Row,

M DCC LXV.

COMMENTARIES

ALPHONSO

OF

OF HERMAN DOIRIAVAT

The late learned Professor of Medicine in the  
University of Leyden.

The Author's last and best work, in which  
he has collected all the most valuable  
Observations on the Diseases of the  
Lungs, and on the  
Asthma, Emphysema, and  
Consumption, in a  
clear and concise  
manner, and with  
many valuable  
Remarks on the  
Treatment of these  
Diseases.

THE SECOND EDITION

1797

LONDON





---

---

THE  
CONTENTS.

OF Continual Fevers,	—	Page 1
Putrid Fevers,	— — —	15
Ardent Fevers,	— —	72
Intermitting Fevers,	— —	212
Acute Febrile Diseases,	— —	378
A Phrenzy in Fevers,	— —	382

COMMENT-

THE

# CONTENTS

OF

General Introduction	1
Part I. —	15
Part II. —	35
Part III. —	55
Part IV. —	75
Part V. —	95
Part VI. —	115
Part VII. —	135
Part VIII. —	155
Part IX. —	175
Part X. —	195

COPIES

# COMMENTARIES

UPON THE

## APHORISMS

OF

HERMAN BOERHAAVE,

CONCERNING THE

KNOWLEDGE and CURE of DISEASES.

---

### CONTINUAL FEVERS.

SECT. DCCXXVIII.

**T**HE most simple of continual fevers is the ephemera or diary fever, which runs through its beginning, increase, height and declension within the space of twenty-four hours. For its causes it acknowledges only a more violent motion of the humours arising from an error in some of the fix non-naturals, being hardly ever attended with any morbid matter. It is known from the lightness of the causes, from a clean and good habit of body, with a mildness of the symptoms, a

VOL. VII.                      B                      speedy.



speedy crisis, the pulse returning perfectly to its natural state, after the fever is off. The cure of it is easily performed by abstinence, rest, and dilution.

Continual fevers, namely, such as run through their course in one continued strain from the beginning to the end, are some of them observed to be joined with a considerable depravity of the solid and fluid parts of the body, produced either before or in the time of the fever; whence many of the functions are considerably injured; and then they are called continual putrid fevers, concerning which we shall treat under the next title. But if the continual fever has no considerable change of the solid or fluid parts of the body observable, nor any great injury of the functions, it is then called a simple continual fever, not putrid; which is never dangerous but always salutary, unless treated by a perverse method of cure, so as to put on a worse nature, as will presently appear. But although these fevers may be justly called continual, yet they the least of all deserve the title of acute, for though they run through their course indeed swiftly, yet it is without danger; whereas in the mean time in order to denominate a fever acute, danger is required to be joined with a swift course. (See §. 564.)

It has been customary with Physicians so to divide such simple continual fevers, whether putrid or not, as to call that fever an ephemera, which finishes its whole course within the space of twenty-four hours, running through in that space the four stages observable in every fever; namely, the beginning, increase, height, and declension. (See §. 590.) But if such a fever runs out to a greater extent, and does not confine itself to the space

## Sect. 728. CONTINUAL FEVERS. 3

space of twenty-four hours; it is not called an ephemera, but a simple continual fever, not putrid. An ephemera properly signifies something limited to the space of a natural day : and hence this name is sometimes given to certain insects, which run through the whole course of their life within that space.

It is likewise evident at the same time, that by this definition we exclude the most acute fevers, which often kill a person in the space of a few hours; for such fevers do not arrive at their declension in that space of time, though they kill the patient before. Yet Cajus has been pleased to call the English sweating disease, which often killed the patient in the space of a few hours, by the name of a *pestilential ephemera*, because the sick perished within that space of time ; and because they sometimes recovered by a sweat continued for twenty-four hours. But as it appears from the description of the disease given by the same author, that though the patient was sometimes put out of danger by a sweat so long continued, yet great weakness, and often other injuries of the functions still remained; and that even sometimes the febrile matter not being sufficiently discharged by sweats, fevers of a very bad kind supervened. At the same time there was also a great and sudden injury of many of the functions ; and therefore that pestilential ephemera belongs to the class of continual putrid fevers. But that diary fever, concerning which we here treat, is ranked among those which are continual and not putrid, and it almost terminates in health at the end of twenty-four hours time. But Dr. Cajus has very well distinguished this disease from a salutary ephemera, by giving it the epithet of *pestilential*.



#### 4 CONTINUAL FEVERS. Sect. 728.

For its causes it acknowledges, &c.] An ephemera almost constantly arises from some manifest error committed in the use of the six non-naturals, insomuch that Galen<sup>a</sup> would have this to be the principal sign of these fevers, namely, from their beginning always from some recent and evident cause. Thus, for example, an ephemera frequently arises from the quantity of food taken in being too great, or of too difficult a digestion, more especially in the weaker sort of people; that thus the vital motions being accelerated, the quantity or strength of the indigested aliments which resist the changing powers, may be subdued. This most simple fever frequently arises after a crapula or surfeit of food, after a drunken fit, too much labour or exercise, violent passions of the mind, &c. in which there is hardly any thing more to blame but the more violent motion only of the humours, excited by such manifest remote causes in a body before healthy. And therefore it is evident, that there is hardly any morbid matter attends in this fever; or at least that which is present may be soon and easily subdued by the fever, so as to be expelled from the body, or become no longer offensive. For as we said before at §. 594. N<sup>o</sup> 1. all that which has degenerated from the laws of health in the fluid or solid parts of the body, whether pre-existing before or produced by the fever, is usually comprehended under the name of the material cause of the fever. Since therefore in an ephemera no such matter pre-existed, it is evident all that can be called the matter of this fever proceeds from a fault in the six non-naturals: and since the matter is so conditioned, that it may be corrected, or at least expelled from the body within

<sup>a</sup> De Febris, Lib. I. cap. 8. Charter. Tom. VIII. pag. 116.



## Sect. 728. CONTINUAL FEVERS. 5

in the short space of a natural day, the reason is evident why it is said in the text to be hardly ever attended with any morbid matter.

It is known from the slightness of the causes.] Although these fevers usually begin from evident causes, and are easily enough curable, yet there seems to be a little more difficulty in the diagnosis or knowledge of them. For Hippocrates<sup>b</sup> observes, (as we said before upon another occasion, §. 564.) that it is difficult to distinguish diseases which are to be judged of long continuance, from those which will cease in a short time, since they are often much alike in the beginning; namely, slight and without bad symptoms. Hence Galen<sup>c</sup> pronounces that a certain diagnosis of an ephemera, is sometimes altogether impossible to be attained; but in general he concludes, that it is not difficult if one rightly attends to every particular; and he adds, that he had ordered even a thousand people whom he had known afflicted with this fever, to return to their usual employment after the first accession of the fever was over, and they had been bathed and moderately fed, acquainting them that they were not to have the fever again. And the event has proved the truth of the diagnosis. But slightness of the causes is justly ranked among the signs of a diary fever: for although, as we lately observed, this fever usually arises from a manifest fault in the six non-naturals, yet if the error committed is egregious, a much longer and more dangerous fever may arise from thence; as is evident from what was said of the causes of fevers at §. 586.

B 3

From

<sup>b</sup> In Prognosticis Charter. Tom VIII. pag. 665. • De Febribus, Lib. I. cap. 1. Charter. Tom. VII. pag. 116.

## CONTINUAL FEVERS. Sect. 728.

From a clean and good habit of body.] For if a fever should be raised even from a slight error in the non-naturals in a cacochemical body, it may be protracted to a great length, when it would have been but of short duration in a pure and healthy body ; and even sometimes a slight fever may be of the most dangerous consequence, as when it puts in motion atrabiliary humours, a sharp scorbutic acrimony, a ropy glutinous matter collected and almost stagnating in leucophlegmatic people ; for it is sufficiently evident that from these humours being put in motion by a fever, a great many mischievous consequences may ensue. And hence when epidemical diseases spread, there is always danger, lest the fevers raised by other causes should be ranked among this class. Almost all the authors who have writ upon the plague testify, that in a raging pestilence if people are taken with other diseases, they soon degenerate into the plague<sup>d</sup>. The like is also observed sometimes in other epidemical diseases. Galen<sup>e</sup> well observes that running or other violent exercise, intemperance, cold, &c. hardly produce a violent disease from their own nature ; but if a fever arises from such cases, it will be of the kind of diary fevers ; but when the body is pre-disposed to other diseases, then the hitherto latent disorder is put into action by these causes, which he therefore calls evident or apparent.

Mildness of the symptoms.] We judge of the magnitude of the symptoms from the injury of the functions ; since therefore a diary fever owes its origin only to slight causes, the body cannot be  
fo

<sup>d</sup> Diemerbroeck de Peste, cap. 5. pag. 10. Thucydides, Lib. II. & apud alios passim. <sup>e</sup> Commentar. 4. in librum Hippocrati. de victu in morbis acutis Charter. Tom. XI. pag. 178.



## Sect. 728. CONTINUAL FEVERS. 7

so changed by those causes as to receive any great injury of its functions. For as Galen says, *Morbi enim cujusque magnitudo tanta est, quantum a naturali statu recedit*; 'the magnitude of any disease' is proportionable to the receding of the parts 'from their natural state'. When therefore great injuries appear in the natural, vital, and animal functions, or if great alterations are made in the excretions of the body either by urine, stools, &c. we know then that the fever attending cannot be an ephemera; since such numerous and weighty symptoms cannot be produced from so slight a disease.

From a speedy crisis.] In the comment to §. 587. where we treated of a crisis, we made it appear that this word is used in various senses, and that sometimes it intends the solution or termination of a disease; which last although it may be joined with some sensible evacuation, nevertheless happens without any symptoms and disturbances preceding the crisis. And in this sense an ephemera may be said to have a speedy crisis; for generally when this fever is in its declension, it terminates in a moderate sweat, more especially when it arises from an obstructed perspiration, which is frequently the case. A slight vomiting or evacuation by stool frequently puts an end to this fever, when it arises from food taken in too great a quantity or of too difficult a digestion. But this sign best of all distinguishes an ephemera from other continual fevers, which however mild run out to a greater length. For an ephemera terminating in the space of a natural day, arrives at its state or full height before the twelfth hour, from whence it gradually declines; and soon after all the symp-

B 4 toms

f Galen, Lib. I. method. med. ad Glaucon. cap. 1. p. 345.

## 8 CONTINUAL FEVERS. Sect. 728.

toms which accompany the fever entirely cease. This has been remarked by Galen<sup>g</sup>, when he says, *Et si capitis aut alterius cujusdam partis dolor simul insiderit, neque ille amplius manet. Si vero & æger facile morbum ferat, maximum illius (ephemeræ) signum est, quod velut impressum sigillum præ aliis omnibus febris mansuetudinem demonstrat.* ‘ But if  
‘ a pain falls into the head or any other part,  
‘ and it no longer continues; or if the patient  
‘ easily bears the disease, it is one of the strongest  
‘ signs of an ephemera, by which it is distinguish-  
‘ ed, agreeable to constant observation from other  
‘ fevers, as if it was marked with a particular  
‘ seal.’

The pulse returning perfectly to its natural state after the fever is off.] By this sign Galen<sup>h</sup> affirms he was able to distinguish an ephemera from the fits of intermitting fevers; for an ephemera being ended, he says, *arteriarum motus statim omnino illi, qui in sanis est, assimilatur; quum is in nulla alia febre ad naturalem statum redeat, etiamsi temporis spatium inter prioris accessionis finem & sequentis initium longum sit; velut in tertianis & quartanis: in illis enim semper supermanet febris signum;* ‘ the motion of the arteries immediately  
‘ resembles in every respect that which is ob-  
‘ servable in health; whereas the pulse never  
‘ returns to its natural state in any other fever,  
‘ even though the space of time betwixt the end of  
‘ one fit and the beginning of the next is very  
‘ long, as in tertians and quartans: for in these  
‘ there always remains the sign of a fever in the  
‘ pulse.’ For generally there remains some weak-  
‘ ness of the pulse after the termination of the fit in  
‘ intermit-

<sup>g</sup> Galen, Lib. I. method. med. ad Glaucon. cap. 2. p. 347.  
<sup>h</sup> Ibidem, cap. 2. pag. 347.



## Sect. 728. CONTINUAL FEVERS. 9

intermitting fevers ; and even frequently though the patient leaves his bed after the sweat is over, the pulse is still perceived to be something too quick. The symptoms also which accompany intermitting fevers, such as lassitude, pain of the head and loins, &c. are seldom so entirely removed as they are after the ending of an ephemera. This diagnosis is confirmed if intermitting fevers are not common at that time ; for then there is less reason to suspect a return of the paroxysms. But in the mean time it must be confessed, that the first paroxysm of a mild vernal tertian may be mistaken from an ephemera, as it often continues for a few hours, and goes off with a gentle sweat ; so that within the space of twenty-four hours all the functions are perfectly restored. But it is also certain that an error in the use of the six non-naturals generally precedes an ephemera, and of which it is the cause ; but also intermitting fevers are sometimes preceded with such a cause. Moreover it sometimes happens, though rarely, that an ephemera is raised even without any previous known error committed in the six non-naturals. I know some who are seized two or three times a year with an ephemera, without any previous notice, but only as it would seem from an accumulation of the bile, which being discharged by vomiting, the fever immediately ceases, and all the concomitant symptoms vanish. If therefore there is the least suspicion of an intermitting fever, it is best not absolutely to predict that the disease will terminate with only one paroxysm. But rather one should intimate that the fit of an intermitting fever will perhaps return again, and that such remedies should be used as may prevent it. For thus the honour of the profession, and the reputation of  
the

the physician, may be the best supported without any detriment to the patient.

The cure of it is easily performed, [Ec.] For this slight disease ceases spontaneously, and in a short time, provided it is not irritated by a perverse treatment so as to turn it into a worse disease. For the general cure of fevers (§. 598.) required four things, namely, the preservation of life and health in the patient, a correction or expulsion of the acrid irritating matter, a dissolution and expulsion of the febrile lentor, and lastly, a mitigation of the symptoms. But in an ephemera life is neither in danger, nor is there any fear of the patient's strength being exhausted in so short a space of time; and as this fever has hardly any matter, if any acrid attends, it will be soon weakened or expelled from the body: a slight lentor perhaps attending in an ephemera, it is dissolved by the fever itself, and expelled from the body by a gentle sweat. But since the symptoms which attend an ephemera are always slight, there will be no occasion to mitigate them, for soon after they disappear, together with the fever itself. Abstinence therefore, with rest of body and mind, and diluent liquors will suffice for the cure. But<sup>n</sup> Celsus makes abstinence of two kinds, one wherein the patient takes nothing at all; the other in which he takes nothing but what he ought. For although in so short a disease, a body before healthy, might easily support abstinence; yet such a moderation of it only will suffice, as allows the patient to take what is convenient, and not too much. A decoction of bread, barley, oats, milk diluted with water, whey, and the like, will here suffice for nourishment; while the same are likewise very  
useful

<sup>n</sup> Lib. II. cap. 16. pag. 92.



useful to dilute all the humours. But since in this fever nothing attends but too violent a motion of the humours, and their containing vessels, therefore rest of body and mind will here afford the best remedies; as we affirmed in treating of the cure of diseases arising from an excess of the circulatory motion (see §. 103, to 106.) Moreover this simple method is the more to be praised, as it is useful in the beginning of all diseases; and therefore if one should be deceived in the diagnosis, and a fever of another kind should follow instead of an ephemera, the use of this method will never do harm: for as soon as sickness is feared, *omnium optima sunt quies & abstinencia, & si quid bibendum, aqua, &c. per hæc enim sæpe gravis morbus instans discutitur*; ‘the best of all remedies are rest and abstinence, and if any thing is taken to drink, water, &c. for by these frequently a violent disease at hand is expelled<sup>i</sup>.’ That celebrated fasting therefore for three days, which certain physicians recommend in all diseases, is justly condemned by Galen<sup>k</sup>, as rendering fevers more severe; even he says, that many are so importunate with their assistance from art, that they rather occasion than cure disorders; or rather as he chuses to speak, ‘they bring on diseases made by the hand.’ For when Asclepiades in the first days of the disease, judged the patient’s strength was to be weakened by strong light, watchings, and intense thirst, insomuch that he would not permit the mouth to be washed during the first days; it is sufficiently evident that a salutary ephemera might by such a perverse treatment, be converted into a most dangerous disease. The same is

<sup>i</sup> Ibid. Lib. III. cap. 2. pag. 114.      <sup>k</sup> Lib. I. Method. Med. ad Glaucon. cap. 2. Charter. Tom X. pag. 346.

is also true if incipient diseases are attacked immediately with purges, vomits, or sudorifics. For as Celsus<sup>1</sup> observes, *Plurimique falluntur, dum se primo die protinus sublaturus languorem, aut exercitatione, aut balneo, aut coacta dejectione, aut vomitu, aut sudationibus, aut vino sperant: non quod non interdum id incidat, aut non decipiat, sed quod sæpius fallat, solaque abstinencia sine ullo periculo medeatur;* ‘many are deceived who hope immediately to remove on the first day of the disease, the languor either by exercise, bathing, forcing stools, vomits, sweats, or by urine: not but these are sometimes useful and do no harm; but because they oftener deceive the expectations, and because the cure may be performed without any danger by abstinence only<sup>m</sup>.’ The simple method therefore here proposed, is the only safe one in an ephemera, and in other incipient fevers. What Galen has said concerning a diary fever, in his eighth book of the method of healing, deserves to be read, as he there lays down the whole history and method of curing this fever<sup>n</sup>.

## S E C T. DCCXXIX.

**I**F this fever (§. 729.) is protracted for several days, it is called continual, but not putrid; the causes, signs and treatment being the same; but it more especially requires plentiful bleeding and cooling medicines.

If the cause of such a fever is something more than usually obstinate, so that it cannot be subdued  
or

<sup>1</sup> Cels. Lib. III. cap. 4. pag. 118.    <sup>m</sup> Ibid. cap. 2. pag. 114.    <sup>n</sup> Charter. Tom. X. pag. 178, &c.



r expelled from the body, within the space of a natural day, the disease will be protracted, and therefore no longer called a diary, but a continual fever; but since the cause was slight, and no malignant symptoms attend, nor any signs appear in the urine, stools, sweats, &c. denoting any great degeneration of the humours from their natural state, therefore it is called continual, or a synochus not putrid; in order to distinguish it from a putrid synochus, concerning which last we shall next treat. Some authors ° have indeed called this fever by the name of an ephemera of several days continuance, but as it would seem, they distinguish it by a less proper title. *Febribus ergo talibus natura quidem eadem est, quæ diariis, nomen autem non idem.*

The nature therefore of such fevers, is the same with that of the ephemera or diary fever, though they have not the same name, says Galen<sup>p</sup>. Thus we observe a diary fever in many people after a drunken fit, while others again have a fever which continues two or three days from the same cause. Such protracted diary fevers or continual, but not putrid, were those very mild fevers which Hippocrates mentions, *mitissimæ febres, quæ in securissimis incedunt signis, & die quarto aut ante denunt*; ° to have been ushered in with the most secure signs, terminating on the fourth day or sooner<sup>q</sup>.

The causes therefore, signs, and cure will be the same here as in an ephemera. But because the increase of the circulatory motion is protracted to a greater length in a synochus not putrid, and as that is usually accompanied with heat, there is just

° Forestus, Tom. I. pag. 11.      <sup>p</sup> Galen. Method. Med. Lib. IX. cap. 1. in fine. Charter. Tom. X. pag. 203.      <sup>q</sup> In Prognostic. Charter. Tom. VIII. pag. 663.

just reason to fear lest the aqueous parts being dissipated, the other particles of the blood may begin to cohere together, and acquire an inflammatory tenacity; while at the same time the saline and oily parts of the blood are rendered more volatile (see §. 100 and 689 :) and therefore from such a fever we may expect an inflammation of the viscera, an acrimony of the humours, and many other bad consequences; whence a continual fever not putrid may turn into one that is putrid. For this reason plentiful bleeding is here convenient, as the most efficacious remedy for a present inflammation, and as the safest preservative against a future inflammation which is feared; for this being performed the fever is often instantly allayed, as Galen<sup>r</sup> proves by a very fair instance. For in a young man who had for thirty days omitted his usual exercise, and afterwards exercised himself more violently than usual, there was a fever with much heat; but his pulsations were equal, large, quick and strong, the heat was not burning, nor the urine much degenerating from its natural state (all which are the signs of a synochus not putrid), but in the mean time the patient appeared red, full and plethoric. But bleeding was deferred, partly that the nature of the fever might first appear, and partly from the disagreement of physicians called into consultation, with respect to the time of opening a vein, and some other particulars, whereby it was put off even to the third day. There was now an intolerable heat in the patient, a tension of the whole body, a throbbing or beating of the head, with troublesome watchings; whence Galen took care to have him bled even till he fainted away, and by that means directly extinguished the fever, in-  
somuch



so much that some of those who stood by, said laughing, that Galen had by this bleeding killed the fever: for soon after, when the patient had first taken some light nourishment, he fell into a profound sleep, with a gentle sweat, and perfectly recovered. But it seems very probable that the disease would have been sooner relieved, if the patient had been bled on the first day.

But the use of cooling remedies is deservedly recommended, which in this case are diluent, and laxative, dissolving the thickness of the humours, and opening obstructions. Honey and the preparations made with it, nitrous medicines, saponaceous acids diluted with plenty of water, or a decoction of barley, oats, roots of vipers-grass and the like, will satisfy this intention; while at the same time they are averse to the putrid degeneration of the humours here to be feared. See what has been said at §. 691 and the following, concerning the cure of febrile heat.

## Of continual putrid FEVERS.

### S E C T. DCCXXX.

**I**T has been customary to call that continual fever a putrid synochus, which arises from the more violent causes of a simple inflammation; such as an obstruction of the viscera, a stopping up the pores of the skin, and almost all the capillary vessels, but with an acrimony sharper than the two preceding fevers, and frequently of a particular kind.

Whenever

Whenever the humours of the body degenerate from their healthy state, either before the fever, or by the fever itself, in such a manner that they become unfit for a free and easy circulation through the vessels, it is called a continual putrid fever; differing in this respect from an ephemera and simple synochus not putrid; in which last there was hardly any matter, and the humours were good conditioned, offending only by their more violent motion; whence that motion being quieted either spontaneously, or by art with plentiful bleeding, with other convenient remedies, the disease often ceases almost without any sensible evacuation; or if any parts of the humours are changed, they are commonly discharged from the body by a moderate sweat, or only by an increased perspiration; and thus health returns in a short time. But moreover when these simple fevers are treated by an improper method of cure, the humours being changed from their natural disposition, may degenerate into a putrid synochus, as is evident from what has been said before.

Galen<sup>s</sup> tells us, *Ubi in omnibus vasis, ac potissimum maximis, æquabiliter succi putrescunt*; ‘that it is a putrid synochus, when the juices equally corrupt or putrify in all the vessels, but more especially in the larger.’ But the term putrid in this fever, has been offensive to many, who have judged it hard that the humours should putrify in a person yet living: hence Trallian<sup>t</sup> remarks, *non deesse, qui in universum febrim nunquam a putredine fieri pronuntiarent, humores in venis exuri, non putrescere, dictitantes*; ‘that there are not wanting physicians who affirm universally, that a fever never arises from putrefaction, telling us

‘that

<sup>s</sup> Ibid. cap. 3. pag. 204.

<sup>t</sup> Lib. XII. cap. 2. pag. 684.



‘ that the humours are not putrefied, but burnt up in the veins.’ But by the term putrid in fevers, the ancient physicians did not understand such a corruption, as we observe to arise spontaneously in dead bodies, but only a considerable degeneration of them from their natural and healthy conditions. For Galen<sup>u</sup> defines the nature of the putrid, *quod sit mutatio totius putrescentis corporis substantiæ ab externo calore*; ‘ to be only a change of the whole substance of the putrescent body by external heat.’ But by external heat he does not understand that which is applied externally to the body, as is evident from what follows in the same place, but that which is different from the natural heat, whereby the healthy body is supported. Hence also it is evident, that by putridness he understands a change of the putrescent body, but not that corruption of it which is perfect, and may be properly called putrefaction. This appears still more evidently in another place<sup>w</sup>, which we mentioned before upon another occasion in the comment to §. 387 and 593. For he there remarks, that a putrefaction of the humours made in the vessels, is like that which we observe in inflammations, abscesses, and other tubercles; and then adds, that this putrefaction varies according as nature overpowers the disease, or is herself overpowered. For when nature overcomes, as in inflammations, matter is formed; so in the humours of the veins and arteries what subsides in the urine answers to pus or matter; he then adds the following, which ought well to be observed: *Atque hæc putredo non simpliciter putredo est, sed etiam aliquid coctionis*

VOL. VII.

C

coctionis

<sup>u</sup> Method. Med. Lib. XI. cap. 8. Charter. Tom X. pag. 254.

<sup>w</sup> Galen. de Febrium differ. Lib. I. cap. 7. Charter. Tom. VII. pag. 115.

*coctionis habet: manente enim adhuc concoquendi facultate vasorum, putrescens tunc humor ad talem alterationem deducitur:* ‘But this putridness is not simply a putrefaction, but it has also something of concoction in it; for the concoctive faculty of the vessels still remaining, the putrescent humour is then reduced to such an alteration.’ But according to the different degeneration of the putrescent humours, and the greater or less weakness of the concoctive faculty, he acknowledges different degrees of this putridness. It is therefore evident enough, as I think, that by the term putrid, Galen would be understood to mean a considerable degeneration of the humours from their natural or sound state; and that he called those fevers putrid, in which there is such a degeneration of them, though there is not a putrefaction properly so called.

But that change of the humours which happens in continual fevers, inclines them to a putrefaction properly so called. For it was demonstrated at §. 80, that the healthy humours being left to themselves by heat and stagnation, as also by violent motion, acquire the nature of incipient putrefaction; and that this natural propensity to putrefaction is increased by augmenting the heat and motion, was proved before at §. 84; concerning which, see also what has been said at §. 100, 587, 689. The urine in these diseases is acrid, red, and sometimes foetid, and the intestinal fæces have often a most intolerable smell, the sweats also are ill-smelling, and afford the signs at least of an incipient putrefaction. But it is very rarely that the circulating humours in diseases become truly putrid within the vessels, since generally death happens before, from a destruction of the most tender vessels and threads of the brain, by the  
more



more acrid and violently moved juices, before they are arrived to so great a degree of corruption; see what has been said on this subject in the comment to §. 89.

Those fevers are termed continual and putrid, wherein the humours degenerate much from their natural and healthy state, and at the same time incline to putrefaction; and hence there are various degrees of malignity observed, according to the greater or less intensity or degeneration of them. But although there is seldom a true putrefaction of the humours in these fevers, and there is only observed such a putrefaction in the fæces collected in the warm and moist intestines, where by accession of air they are very easily corrupted; yet in these diseases, even in the humours there is always a great propensity to putrefaction.

Which arises from the more violent causes of a simple inflammation, &c.] By simple inflammation is here understood, when some particular part of the body is taken with a phlegmon from a topical cause; which, although the body is healthy in other respects, is often attended with a fever, for the reasons given before in the comment to §. 382, N° 8. For when the inflammatory matter of a preceding fever is some time deposited upon any particular part of the body, it occasions a pleurisy, quinsy, phrenzy, or some other inflammatory disease, together with a fever; because then the vessels being obstructed by the inflammatory matter in the part affected, hinder the free circulation of the humours, the velocity of which is increased generally through the other free and pervious vessels; and yet cannot the fever which attends these diseases be always properly called putrid, since they are often resolved by a mild resolution; and sometimes, at least in the beginning

of these diseases, or when they are not very violent, we do not observe so great a degeneration of the fluids from their natural state. But if the whole mass of blood by an inflammatory tenacity becomes less easily pervious, so as to pass difficultly through the smallest extremities of the arteries, it will begin to hesitate in the vascular and intricate texture of the viscera; the cutaneous vessels being stuffed up and distended by the impervious humours, will compress the adjacent smaller vessels; whence all the capillary vessels, thus called from their minuteness will be obstructed, or at least they will not transmit the less pervious humours without difficulty; hence will follow a violent attrition and heat, which are enumerated among the signs in the following aphorism of a continual putrid fever. Since therefore there is so great a degeneration of the humours attending this continual fever, it is called putrid for the reasons before mentioned.

But with an acrimony sharper than those preceding, and frequently of a particular kind.] Sometimes also an acrid stimulus applied to the body, either by what is taken in, or from the degeneration of humours already in the habit, excites a fever, or else continues it when excited, as is evident from what was said at §. 586, where we treated of the particular causes of fevers. But this acrimony is sometimes altogether of a particular kind, and cannot be reduced to any known species of acrimony, manifesting itself only by its effects, producing putrid fevers, and frequently a wonderful degeneration of the humours at the same time. When the contagion of the small-pox is applied to a healthy person, what a putrid fever does it sometimes raise? and the same also appears in the plague, and other malignant fevers which spread



spread epidemically. For although these morbid or contagious effluvia, which by a wonderful stimulus are able to produce putrid fevers, are not discernable by any of the senses, and therefore we cannot obtain a distinct idea of them, as they only manifest themselves by their effects; yet the best authors have remarked concerning these, that when the blood is inspissated by their force, or by the increased motion which they excite, there ensues an inflammatory tenacity of the humours, by which the viscera are obstructed, and almost all the capillary arteries are blocked up. But sometimes it has appeared from the most faithful observations, that putrid fevers produced by such stimuli, have brought on a very considerable degeneration of the humours, but very different from that before mentioned; namely, when the blood, and perhaps the rest of the humours thence separated, are either attenuated to so great a degree, that they escape through various passages of the body, with a sudden and great loss of strength. Thus in the comment to §. 86, it was observed that in the plague of Breda, the blood of the infected appeared livid and foetid without congealing: and the same author<sup>o</sup> remarks, that the patient sometimes perished in the space of a quarter of an hour, with a profuse bleeding at the nose. Wepfer<sup>p</sup> has observed that in malignant and petechial fevers, profuse and dangerous hæmorrhages often follow from the nose, uterus, kidneys, &c. because in these petechial fevers, the blood being highly attenuated, very fluid and hot, opens the extreme mouths of the arteries. And he found that fish glue was of use here by increas-

C 3

fating

<sup>o</sup> Van der Mye de morbis Bredanis, pag. 8. <sup>p</sup> Cicuræ aquat. hist. & noxæ, cap. 5. pag. 52.

fating the blood. And when he opened a vein in the beginning of such a fever in a common council man, the blood extracted, after standing a long time at rest in any place, was little or nothing concremented; and he assures us that he afterwards frequently observed the same thing. In the worst kind of the small-pox, as we shall hereafter declare in the history of them, there often happens a fatal hæmoptoe, or what is almost equally pernicious, a making of bloody urine, which is remarkable in the first stage of this disease, perhaps from the same cause. Hence perhaps a celebrated author<sup>a</sup> very justly distinguishes these febrile miasmata into two kinds from their effects; namely, inasmuch as they either incrassate or dissolve our humours; and hence a great difference must take place in the cure of the diseases, as is sufficiently apparent. For although an increased velocity of the circulation §. 100, and the febrile heat §. 689, occasion an inspissation of the blood by dissipating the most fluid parts, and though an expression of the most liquid juices, and an inspissation of the rest are enumerated among the effects of a fever, §. 587; yet it is nevertheless true, as is evident from what was lately said, that sometimes wonderful stimuli altogether of a particular nature, being put into action together with the fever, dissolve the humours by a poisonous force, and dispose to putrefaction; whence often in the very beginning of such diseases, a great quantity of the most putrid fæces is discharged by stool; and the like putrid smell observed in the urine, breath, sweat, &c. manifestly denote such a degeneration of the humours.

Of

<sup>a</sup> Lobb of the Small-pox, in the Preface, pag. 15.



Of this nature seems to have been that disease which Hippocrates describes under the name typhus<sup>r</sup>, and which he says invades, when the bile is moved through the body when the dog star arises in the summer-time. For in this disease he observed, that immediately an intense burning was felt, together with an acute fever; and immediately the strength was exhausted with a weakness and heaviness of the body, and such an impotency of the legs and arms, that they were of no use to the patient. He also remarks that the belly was disturbed with violent gripings, and ill-smelling stools were discharged. But that there was a putrid dissolution of the humours in this disease, is confirmed from the remedies which he recommends in the cure. For he orders cold and thin suppings to be given, black austere wine to be drank, or if that is not so proper, white austere thin wine. Moreover he advises the application of linen cloths dipped in cooling liquors, to those parts of the body where the greatest heat is principally perceived. But all these are only of use when too great a dissolution of the humours attends; for when an inflammatory thickness prevails in the blood, both austere and actually cold liquors are mischievous, as is evident from what was said of these in the cure of an inflammation. Of this kind seem to have been those acute fevers, in which the ancient physicians recommend the drinking of cold liquors as extremely useful. For Galen tells us<sup>s</sup> that the two greatest remedies in the cure of continual fevers, are bleeding, and the drinking of cold liquors. But in the same chapter he observes, that these were more especially

C 4

useful

<sup>r</sup> De Internis affectionibus, cap. 41. Charter. Tom. VII. pag. 667. <sup>s</sup> Method. Med. lib. 9. cap. 5. Charter. Tom. X. pag. 209.

useful to those who have been accustomed to the drinking of cold liquors ; and adds at the same time that they are mischievous, where any principal part is occupied by a phlegmoneide, œdematous, or schirrhous tumour. *Tunc enim ad præsens quidem non parvum affert levamen, propterea quod jam accensam febrim exstinguit ; verum, manente adhuc ejus causa, aliam denique accendi necesse est, atque ut plurimum ea, quæ præcesserit, difficiliorem, propterea quod densatum ex frigido potu corpus est.* ‘ For in these cases it affords considerable relief for the present, inasmuch as it extinguishes the fever already kindled ; but the cause still remaining, another fever must at length of necessity be kindled again, which generally proves more difficult than the former, inasmuch as the body is condensed by the cold drink.’ And in the same place he enumerates many bad consequences arising from cold drinks. They seem therefore to be only useful when there is no inflammatory thickness of the humours, but they are rather inclining to too great a dissolution and putrefaction. See also what has been said concerning the drinking of cold liquors in the comment to §. 640, N° 1. Hence the reason is also evident why, sometimes, in acute putrid and continual fevers, those acid spirits of sea salt, sulphur, nitre and vitriol, which are obtained by the force of fire, are so serviceable, since all of them coagulate the blood upon being mixed with it. For the putrid dissolution of the humours is removed by such medicines, and the future dissolution is prevented. Hence Sydenham has observed, nothing proves more useful in the confluent kind of the small-pox, than the mixing of spirit of vitriol in the patient’s common drink, (as we said before in the comment to §. 88, N° 2.)



## S E C T. DCCXXXI.

**T**HIS fever is known by a heat even uneasy to the finger or touch of the physician, by a pulse not only feverish, but also unequal and irregular; from the urine being thick, red, turbid, and crude, without sediment; from a hot and sanguine constitution, age, and habit of body.

It is now our necessary business to consider those signs by which a continual putrid fever may be known when present, and whereby it may be distinguished from the other kinds of fevers. But it is more especially difficult in the beginning, to distinguish such a continual fever, properly so called, from a continual remittent, which abates and renews its force by turns; for these fevers are very much alike in their beginning, and in both of them the humours frequently degenerate much from their healthy state, and are attended with severe symptoms. Hence Galen<sup>†</sup> describing the case of a young man afflicted with a putrid synochus, tells us, that he dared not determine the disease before he saw on the third day that no new fit or accession came on, although he suspected even on the second day that the fever was a putrid synochus. But although this difficulty attends the diagnosis of these fevers, yet the general method of cure agrees with them both; and therefore it will not be concealed from a skilful physician what is necessary to be done, and especially with regard to keeping the fever under a due moderation,

<sup>†</sup> Ibid. cap. 4. pag. 206.

tion, lest by its raging violence it should destroy the body, or else prove too sluggish. Hence Galen in the case before mentioned, did not doubt but that by a bleeding continued till the patient fainted, the febrile motion would cease on the second day when he first saw the patient, although he confesses that he was not certain that the disease was reputed synochous under the third day.

But a putrid synochus is distinguished from one that is not putrid, and from an ephemera by the following signs.

By a heat even uneasy to the finger or touch of the physicians.] Galen<sup>u</sup> places the principal sign of putrid fevers in their heat: for, says he, *Nibil enim suave, nihil moderatum, neque ephemeris simile habet, sed quemadmodum optimi ante nos medici dixerunt, mordax potius quodammodo est, ut lædet mordetque tactum, veluti fumus oculos ac nares*; ‘they  
 ‘ have nothing at all of gentleness or moderation,  
 ‘ nor do they resemble an ephemera; but as the  
 ‘ best physicians have pronounced before us, the  
 ‘ heat is rather sharp, so as to injure or seem un-  
 ‘ easy to the touch, in the same manner as smoke  
 ‘ to the eyes and nose.’ In other fevers though there is an intense heat perceived immediately upon the touch, yet it is soon overcome by the heat of the finger touching, and soon after seems less; but in these continual putrid fevers the heat often seems mild in the beginning, when the patient’s hand is felt, yet the heat is increasing in a manner every moment, so that it pricks or excites an uneasiness to the touch of the physician, as if the heat came from a deep part of the body; which  
 is

<sup>u</sup> De Febr. differ. lib. 1. cap. 9. Charter. Tom. VII. pag. 118.



is likewise well remarked by Galen <sup>w</sup>, when he says, *Verum inter initia accessionum (dum adhuc suffocatur calor, & intus accenduntur excrementa) non statim admoventibus manum dignoscitur; sed diutius immorantibus prædictum caloris genus quasi de profundo emergit*: ‘But in the beginning of the accession or fit of the fever, when the heat is as yet suffocated, and the excrements are in a manner parched up, it cannot be immediately discovered by the hand applied to the patient; but upon a longer examination the forementioned heat seems to rise as it were from a considerable depth.’ They who have once felt the pulse of such patients can better perceive and discover this difference of the heat (for it perhaps cannot be distinctly described by words;) and at the same time the reason may be understood, why Hippocrates <sup>x</sup> says, *Febres, hæc quidem manui mordaces, illæ vero mites; quædam non mordaces, incrementes vero; nonnullæ acutæ, sed ab ipsa manu devictæ, &c.* ‘These fevers are indeed pungent or uneasy to the touch, but the others are mild; some are not violent, but increase; some again are acute, but subdued by the hand itself, &c.’

But since a putrid synochus frequently owes its causes to those of a simple inflammation increased, as we said before under the preceding aphorism, namely, when an inflammatory thickness attends throughout the whole mass of blood, and when such blood is moved rapidly through the vessels by the increased motion of the fever, the reason is sufficiently evident, why this pungent heat is in a manner every moment increasing; concerning which see what has been said at §. 675, and the following, where we treated of the causes of

<sup>w</sup> De Febr. differ. lib 1. c. 9. Charter. Tom. VII. p. 118.

<sup>x</sup> Ibidem, cap. 1. pag. 107.



of febrile heat. But it is to be observed that sometimes the extremities are cold in the worst kind of these fevers, though at the same time there is the sense of a burning heat perceived by the patient about the præcordia; but this fatal sign seldom appears in the beginning of these fevers; (see the comment to §. 698.) as this only happens when the patient's strength is exhausted or broken, so that the heart cannot propel the blood to the extreme parts of the body; or that the blood is so condensed that it can only circulate through the larger vessels near the heart; but in the mean time an intolerable burning heat is perceived about the vital viscera by the patient, which is a sign sufficiently denoting the presence of a putrid synochus.

By a pulse not only feverish, but also unequal and irregular.] By this sign also a putrid synochus is well distinguished from an ephemera or a simple continual fever: for in these the pulse is strong, equal, and not much exceeding in quickness the motion observable in the healthy pulse. But in a putrid continual fever there is a greater quickness of the pulse, though it is unequal both as to strength and velocity. But this inequality of the pulse proceeds either from the blood by an inflammatory thickness, beginning to hesitate or stagnate about the narrow extremities of the arteries; or at least not passing through them without difficulty, it destroys the equability of the circulation; or likewise when a particular kind of acrimony being the cause of these fevers, wonderfully disturbs the whole system (as we said before under the preceding aphorism;) whence often great weakness immediately follows, with a trembling of the pulse and other bad symptoms. This variation of the pulse in these fevers is called by Galen <sup>v</sup> the compression

<sup>v</sup> De Febr. differ. lib. 1. c. 9. Charter. Tom. VII. p. 117, 118.

ression or depression of the pulse, namely, when the pulse appears very small and unequal at the beginning of the coming on of the fever. But he does not make this an inseparable sign of these fevers; and yet he says, that when it attends it is proper to these fevers, unless the pulse should become such from some other symptom: for when, for example, a mawing humour is collected about the upper orifice of the stomach, the pulse often appears small and unequal; which change of the pulse ceases immediately when the matter lodged about the stomach is expelled by vomit. But this inequality of the pulse only may deceive one in the diagnosis; for it is sometimes observed to be such in the cold fit of intermitting fevers. Moreover there is often observed a wonderful disturbance in the pulse, in and about the time of the crisis, as we observed in the general history of fevers.

From the urine being thick, red, turbid, and crude, without a sediment.] The urine is a watery exuvium mixing with and washing out from the blood every thing that is dissolvable in water, which it exhibits out of the body, passing by the tubes of the kidneys into the pelvis, thence into the ureters and bladder<sup>z</sup>; and therefore from the urine may be had the best sign whereby to know the condition and alterations of the blood and other humours. But since in a putrid synochus there is a great degeneration of the humours from their healthy state, therefore there ought to appear a considerable change in the urine, different from what is observable in healthy urine. For healthy urine (as Galen<sup>a</sup> well remarks) affords a standard or rule with which diseased urines ought to be compared, in order to see what and how much difference

<sup>z</sup> H. Boerh. Chem. Tom. II. pag. 304. <sup>a</sup> De crisiibus, lib. I. cap. 12. Charter. Tom. VIII. pag. 394.



rence there is betwixt them ; and other things being alike, the urines in diseases are always so much the worse, as they degenerate more from the conditions of healthy urine. But healthy urine is limpid, thin, and of a yellowish or straw colour, in which subsides a light uniform and white sediment : in an ephemera and synochus not putrid the urine does not much depart from these conditions, except that it is usually a little higher coloured, and sometimes affords a greater quantity of sediment. When therefore the urine is thus conditioned in a continual fever as it is described in the text, it is sufficiently evident that it varies in all its qualities from healthy urine, namely, both in colour and thickness, being turbid, crude, and without sediment ; and therefore it is justly concluded from thence, that the blood and other humours from whence the urine is separated, have undergone a great alteration from their healthy state, which is peculiar to the fevers called continual and putrid. At §. 734. we shall still have something more to say concerning the various conditions of the urine in a putrid synochus, so far as they relate to the deduction of a prognosis from thence.

[ From a hot sanguine constitution, age, and habit of body. ] For in such people there is a predisposing cause, which by meeting with an occasional or accidental cause, such as heat of the air, violent motion of the body, drinking a great deal of wine, &c. may be capable of exciting a continual putrid fever ; because in such people the blood is very much inclined to an inflammatory disposition ; and the velocity of the circulation being increased, a very great increase of heat immediately follows, whence a sudden degeneration of the humours more especially into a putrid state is justly to be feared. Hence appears the reason why Hippocrates



cratēs<sup>b</sup> has pronounced the great health or strength of the athletæ when extended to its greatest height to be dangerous; and enumerating the diseases of different ages, he observes<sup>c</sup>, that young people are subject to acute fevers, but afterwards to pleurifies, peripneumonies, inflammation of the diaphragm, and ardent fevers. Even Galen<sup>d</sup> will have these predisposing causes so necessary towards the production of a synochus, that he believes it impossible, *ut in frigida ætate, nec in frigido corporis temperamento, sive ab initio adfuerit, sive nunc frigidum fuerit factum, continua excitetur febris. Uti nec in gracilibus, vel qui raro sunt corporis habitu*; ‘for a continual fever to be excited in old age or in a cold temperament of body, whether from the birth or from the body being at that time rendered cold. As likewise these fevers are equally unapt to be excited in those of a weak or tender habit of body.’

## S E C T. DCCXXXII.

**T**HIS putrid continual fever is distinguished into three kinds, homotonous, keeping in the same degree of strength; epacmastic or anabatic, continually increasing; and lastly, paracmastic, continually decreasing.

This threefold division of continual fevers is given us by Galen<sup>e</sup>. Those are called homotonous which continue of equal strength from the beginning to the end, which he also calls acmastic.

But

<sup>b</sup> Aphor. 3. Sect. 1. Charter. Tom. IX. pag. 7.

<sup>c</sup> Aphor. 29, 30. Sect. 3. *ibid.* pag. 125, 126.

<sup>d</sup> Method. medend. lib. 9. cap. 3. Charter. Tom. X. p. 304.

<sup>e</sup> De Febr. different. lib. 2. cap. 2. Charter. Tom. VII. pag. 128.

But he calls such epacmaſtic or anabatic when the fever gradually increaſes; and paracmaſtic, on the contrary, when it decreaſes. But it is to be obſerved that every continual fever has a beginning, from whence it goes on gradually increaſing, till it arrives at the acme or height of its increaſe; and therefore in this ſenſe an homotonous fever may be ſaid to increaſe: but as Galen<sup>f</sup> well remarks, this name is given to a continual fever, *ſi maneat ea febris magnitudo, quam in prima acceſſione ſummam habuit*: ‘if the ſame degree or magnitude of it continues, as at firſt invaded the patient.’ But if the fever continually increaſes, it is then to be termed epacmaſtic; and on the contrary, when from its greateſt height it gradually declines, he would have it called paracmaſtic. At the ſame time alſo it appears, that ſuch a fever which continues a day or two homotonous or of equal ſtrength, may afterwards change for paracmaſtic in the decline of the diſeaſe: for I believe it ſeldom happens that ſuch a fever terminates all at once without a manifeſt declenſion, unleſs the fever is in a manner killed by large bleeding, as we obſerved before. And hence Galen<sup>g</sup> deſcribing the caſe of a young man ill of a putrid ſynochus, remarks, that the fever continued with the ſame ſtrength for the two firſt days, even though blood was drawn till he fainted; but on the third day he found the violence of the fever a little abated; and then he concluded that the fever ought to be termed a putrid paracmaſtic ſynochus, even though it continued homotonous or equal for the firſt days; and as the fever again declined on the fourth day, and at the ſame time the concoction in the urine

was

<sup>f</sup> Meth. Med. lib. 9. cap. 3. Charter. Tom. X. pag. 203.

<sup>g</sup> Ibidem, cap. 4. pag. 206.



was advanced in proportion, he concluded that the fever would terminate on the seventh day, as it happened. But that the fever continues of the same strength, increases or decreases, we know from the quickness of the pulse, heat and remaining symptoms being increased or diminished.

## S E C T. DCCXXXIII.

**O**F these kinds the first is salutary, the second is the worst, and the third is better.

The reason of this is very evident; for if the remaining health in the patient can support the disease during its greatest increase, there are hopes that the disorder may be longer supported, as it increases no higher, but continues the same, or else gradually declines. But when the fever continually increases, then health declines as the disorder advances; and therefore there is just reason to fear, that nature being overpowered will sink under the disease. Therefore from this distinction of a putrid synochus, one may be also able to know what to judge concerning the event of the disease; but what else remains relating to the prognosis is delivered in the following aphorism.

## S E C T. DCCXXXIV.

**T**HIS fever (§. 730.) is esteemed so much the more dangerous or fatal, as the pulse appears weaker, quicker, more unequal in strength, more irregular as to time, and more intermitting in its strokes; as the respiration is more difficult, frequent, and



short, with a greater motion of the nostrils, and a greater uneasiness or anguish about the vital viscera, and as it is more irregularly performed as to time ; as the lassitude or sense of weariness is more severe, as the weakness is greater, the tossings of the body more frequent, and as the patient oftener chuses to lie upon his back with his limbs stretched out ; as the reason and passions of the mind appear more disturbed upon using them ; as the appetite is more destroyed, and the digestion more difficult ; as the urine appears thicker, redder and more turbid, with a less sediment ; or as it appears thinner, more watery, less in quantity, and more difficult to be retained : as the motions of the muscles are more trembling, as the patient refuses, or is afraid of being touched, plays with his fingers, and feels or catches after something about him ; as the eyes are more sorrowful, and moist with involuntary tears.

That every putrid synochus is dangerous, no one doubts ; but yet there is not the same danger in all. But the various magnitudes or degrees of the disease being known, will point out the degree of danger ; but this is discovered from the greater or less injury of the functions. For, as we observed before, in the comment to §. 3. from Galen ; *Cujusque morbi tanta magnitudo est, quantum a naturali statu recedit ; quantum vero recedit, is solus novit, qui naturalem habitum ad amissum tenuerit :*  
 ‘ The degree of magnitude in any disease must be  
 ‘ computed by the degree of its departure from a  
 ‘ natural

‘ natural state ; and how far this happens he only  
 ‘ knows, who is thoroughly acquainted with the  
 ‘ natural state of the parts.’ Herein lay the wis-  
 dom of the ancient physicians, that they collected  
 together the signs appearing in diseases, and by  
 comparing them with what they observed in a  
 perfect state of health, they by that means perceiv-  
 ed how much health and disease were distant from  
 each other ; and from having observed this differ-  
 ence they concluded with respect to the magni-  
 tude of the disease, and its salutary or fatal event.  
 Thus Hippocrates, in his prognostics, considered  
 the face, with the habit of the body and manner  
 of the patient’s lying, with his behaviour, passions  
 of the mind, &c. and by comparing them with  
 what appeared altered in the disease, he condemned  
 those which deviated from the usual laws of health,  
 and commended such as appeared conformable to  
 those laws. For the ancients did not derive their  
 prognosis from understanding the causes of the  
 disease, but only from a faithful observation of  
 their known effects. Hence Hippocrates lays  
 down this general rule, from whence the different  
 magnitude and event of a disease may be presaged.  
*Quantum in illis, quæ per vesicam, alvum, & per*  
*carnes excernuntur, vel sicubi alias a natura recedat*  
*corpus (considerandum est.) Si parum, parvus mor-*  
*bus erit ; si multum, magnus ; si omnino multum, id*  
*hujusmodi lethale :* ‘ That we ought to consider  
 ‘ the condition of what is evacuated by urine,  
 ‘ stool or sweat, or any other emunctory of na-  
 ‘ ture whereby there is a passage out from the  
 ‘ body : and if thus the body appears to deviate  
 ‘ little from its natural or healthy state, the disease  
 ‘ will be slight ; but if the alteration is great, the  
 ‘ disease will be in proportion ; but if nature is  
 ‘ entirely perverted in the highest degree, the con-



‘dition of the disease must be fatal <sup>h</sup>.’ This rule has been followed by our great author, the celebrated BOERHAAVE, who has collected together and digested in order, from the writings of the ancients, every thing appearing amiss, either in the vital, animal, or natural functions; making the disease so much the worse and more fatal, as a greater number and more violent injuries were offered to those functions. We shall therefore consider more particularly each of these.

As the pulse appears weaker, &c.] Under the name of the pulse are comprehended those two distinct motions of the arteries, whereby they are dilated with the blood impelled by the force of the heart, and soon after they are contracted by their elasticity and force of their muscular fibres, so as to propel forward the contained blood. Therefore the pulse denotes the particular condition of the heart, with the nature, quantity, and motion of the blood, that universal humour of the body from whence all the other juices are derived; as also the different state of the artery, which is almost the primary vessel of all the parts of the body <sup>i</sup>. It is therefore evident, that the observation of the pulse is of the greatest use in diseases. But in order to presage any thing certain from the pulse, it is to be observed, that the motion of the artery is liable to many alterations; which do not so much proceed from the disease, as from the patient’s age, sex, temperature, and habit of body, with the passions of the mind, season of the year, and particular condition of the artery itself. Hence Galen <sup>k</sup> has very well distinguished the alterations of the pulse  
into

<sup>h</sup> Aphor. 79. Sect. VII. Charter. Tom. IX. pag. 337.

<sup>i</sup> Her. Boerhaave Institut. Sect. 958.

<sup>k</sup> De Puls. ad Tyrōnes, c. 9. Charter. Tom VIII. pag. 4.



into natural, non-natural, and preter-natural. The natural change of the pulse, he calls that which proceeds from the sex, age, temperature, habit of body, climate, season of the year, and the like; for thus, for example, the pulse is usually stronger and slower in men than in women. In children it is much quicker than in adults, but in old age it is slower; in fat people the pulse is perceived much weaker than in those who are lean. By the non-natural change of the pulse, he intends<sup>1</sup> those which follow after long exercise of body, warm bathing, after a large meal, &c. But by the preter-natural changes of the pulse, he intends<sup>m</sup> those which arise from morbid causes. It will be therefore best of all, if it is first known what kind of pulse was natural to the patient before he was taken with the disease; whence Celsus well observes, (see the comment to §. 602. N<sup>o</sup> 7.) that of two physicians equally skilful, one who is a friend or acquaintance may be more useful than a stranger. But this cannot always be obtained, *cum multi medicos desiderent, cum quibus sani nullum habuerunt commercium*, ‘since many people have occasion for physicians with whom they never had any conversation in health<sup>n</sup>.’ Therefore nothing more remains in such a case, than for a physician to attend to the general alterations of the pulse, agreeable to the age, sex, constitution, &c. It is also best to examine the pulse in each wrist, because it is frequently perceived much weaker in one hand than in the other, either from the deeper situation, or from the different size of the artery, &c. It will be likewise of use to observe the advice of Celsus, (which we have mentioned before at §. 571.)

D 3

namely,

<sup>1</sup> Ibid. cap. 10. pag. 6.<sup>m</sup> Ibid. cap. 10. pag. 7.<sup>n</sup> Ibid. cap. 9. pag. 4.

namely, for a physician not to feel the pulse immediately as soon as he comes into the chamber but first to sit himself down by the bed-side with a chearful countenance, and to encourage the patient if he is fearful, by fair words. For very often patients being solicitous about the danger of the disease, are disturbed at the first sight of a physician, and then a wonderful alteration is observable in the pulse from that cause, which yet commonly ceases soon after.

If therefore the alteration of the pulse proceeds entirely from the disease as the cause, then the following rules take place.

Weaker.] For it denotes that the powers moving the blood through the vessels are diminished, or else that there is a deficiency in the quantity of the fluid to be moved, whether from profuse evacuations preceding, or from almost all the blood being collected in many obstructed and dilated vessels, a very small quantity of it flowing freely as yet through the vessels, which is not sufficient much to dilate the arteries. But since the concoction of the febrile matter with the attenuation and expulsion of it from the body by critical evacuations, or a deposition of it on certain parts of the body, require a strong circulatory motion, it is sufficiently evident that a weakness of the pulse is always a bad presage. But on the contrary a strong pulse is always a good sign; or if it should be too violent in these fevers, it may be easily reduced to its due moderation by bleeding and the other remedies before enumerated at §. 610, whereas on the other hand it is often extremely difficult to raise or restore the vital powers when they are too weak in diseases.

Quicker, more unequal, &c.] For so much the more does it deviate from the healthy pulse, which



which is naturally used to be slow and equal. But the pulse appears thus in dying people, namely, very quick and weak, insomuch that their number cannot be distinguished, now and then a stronger pulsation or two coming betwixt; when the heart having collected a somewhat larger quantity of blood in its venous sinus's and auricles, is more filled and more powerfully contracted; after which the pulse intermits again; or else there are very quick and small undulations only of the artery scarce perceivable, until the heart being again filled, renders the pulse stronger for a moment. Since therefore this pulse denotes that life is wavering in its spring or fountain, it is sufficiently evident what a fatal presage it must afford in diseases. But it is to be observed, that when the matter of the disease concocted and subdued by the fever itself is moved through the vessels, and disposed for a critical evacuation, or to settle upon some part, there are often wonderful disturbances observed in the pulse, which yet are of no bad presage at that time; concerning which we spoke in the comment to §. 587, where we treated of a crisis. But such alterations of the pulse may be known by the previous signs of concoction, with the stage of the disease, and signs of an approaching crisis, so as to distinguish them from those changes which arise from the malignity or violence of the disease. The same thing also holds true with respect to many other symptoms mentioned in the present aphorism; namely, when they sometimes precede or accompany a salutary crisis; and therefore it may be sufficient to remark this once for all.

As the respiration is more difficult, frequent, &c.] Hippocrates relied greatly upon a careful consideration of the patient's breathing, insomuch



that he derives more of his prognostics from the respiration than from the pulse. But if one is well acquainted how the respiration ought to be in a good state of health, it will be evident enough how much the diseased respiration varies from it. For the best respiration is performed when the air is drawn in, restrained, and discharged freely, slowly, and without any noise or interruption; and such a respiration denotes that all the organs serving to that action, are in a good state, and that the lungs may be easily expanded; also that the blood can be commodiously transmitted through them, and therefore that it is fit to circulate through all the vessels of the body °. Hence the reason is evident why Hippocrates<sup>p</sup> says, *Spirandi vero facilitatem existimare oportet, quod valde magnam vim habeat ad salutem in omnibus morbis acutis, qui cum febre sunt, & quadraginta diebus judicantur;* that the easiness of breathing ought to be estimated, as having a great influence towards health in all acute diseases, which are joined with a fever, and terminate in forty days.' But when this easiness of breathing is wanted, it always affords a suspicious sign, inasmuch as it denotes that the necessary dilatation of the lungs, and the free course of the blood through them from the right to the left ventricle of the heart is impeded. In the mean time it must be observed, that the free dilatation of the thorax may be impeded from a misconformation in those who are crooked, or from a distension of the abdomen in such as are with child, and many other causes of the like nature existing before the disease; which will therefore

° H. Boerhaave Institut. Sect. 971.    p In Prognosticis Charter. Tom. VIII. pag. 606. Coac. Prænot. N° 261. ibid, pag. 866.

fore have no share in the prognosis, any farther than as such disorders being joined with such a misconformation, will more impede the respiration.

But a difficult respiration is said to be that which is performed with much more labour than what we usually observe in a healthy person awake and at rest; for then the breathing is so slow and quiet that it is hardly perceived. For it is known from physiology, that the vital and healthy respiration is performed without the influence of the will, and that it even continues unknown to a person during sleep; but then to this vital respiration may be joined other causes, or muscles subject to the influence of the will, which serve to make a much more violent dilatation of the thorax in inspiration, and contraction of it in expiration. For there are a great number of very strong muscles, which, though serving for other purposes, do nevertheless operate in respiration by the influence of the will<sup>9</sup>; and as these are much larger and stronger than those which perform the vital respiration, we are therefore able to increase, diminish, or entirely suppress our breathing at pleasure. When therefore a sense of anguish arises in fevers from the lungs being less easily dilatable, or from the blood having a more difficult passage through the pulmonary artery, the patient in that case endeavours by the efforts of respiration to remove those resistances, and therefore calls in the action or assistance of all the forementioned muscles; and then the respiration is said to be difficult, which always supposes that the lungs are less easily dilatable in their air vessels, or else that there is an imperviousness of the blood to be transmitted through the pulmonary artery; or lastly, that there is a greater celerity of the motion of the blood

<sup>9</sup> H. Boerhaave Instit. Sect. 621, 622.



blood through the pulmonary vessels, or that several or all of these causes concur together. For we know that for all the blood contained in the right ventricle of the heart, to pass freely and swiftly through the lungs into the left ventricle, requires the lungs to be dilatable in their air vessels and cells; for want of which, nature has provided other passages in the foetus, by which the blood may pass immediately from one ventricle of the heart to the other; but which passages are closed up after the birth, when respiration is allowed. When therefore the easy dilatation of the lungs is impeded by a convulsive constriction in asthmatic patients, or when the blood cannot pass freely through the narrow extremities of the pulmonary artery in inflammatory diseases of the lungs; or when in animals otherwise healthy, the circulation is accelerated by violent motion of body, a greater quantity of blood must pass through the lungs in the same space of time; in all these cases the respiration is performed with more labour; all the voluntary muscles then acting, which are not concerned in a healthy and easy respiration.

Hence the reason is evident why Hippocrates<sup>r</sup> calls a difficult respiration by the title of profound or deep, as if a person was suffocating; for then there is observed a violent motion of the thorax, so as to raise up the bed-clothes with which the patient is covered, every time that he breathes; whence he calls it as it were, a manifest respiration, because in healthy people at rest there is hardly any apparent motion of the thorax when they breathe. In another place<sup>s</sup> he calls it a high respiration.

<sup>r</sup> Prorrhēt. Lib. I. Text. XXIV. Charter. Tom. VIII. pag. 715. Coac. Prænot. N<sup>o</sup> 252. *ibid.* pag. 866.

<sup>s</sup> Epidem. 3. Charter. Tom. IX. pag. 235, 236.



respiration, when the superior ribs are elevated with a great force, and seem to raise the whole breast. But he every where condemns a difficult respiration in acute diseases, when he says <sup>t</sup>, *Quibuscumque in febris non intermittibus spirandi difficultus fit, & delirium, lethale*; ‘ a difficulty of breathing and a delirium, are fatal signs in all fevers which are not intermitting.’ The disease therefore will be always worse and more fatal, as the respiration is more frequent and laborious or difficult; since disordered as well as healthy people breathe quick, and use all their endeavours to dilate the lungs after violent running. Then appears the motion of the nostrils, namely, that by dilating them a greater quantity of air may be drawn in to distend the lungs to a greater degree. This fatal sign more especially attends, when the strength being exhausted, the patient is no longer able, either to sit upright in the bed, nor to assist the almost suffocated respiration by a powerful action of the voluntary muscles. This motion of the nostrils appears very evidently in horses, who breathe quick after violent running, when they dilate the nostrils much wider than usual; and hence we read that dealers in cattle sometimes slit the nostrils of horses, that they may breathe the air more freely <sup>u</sup>.

But since a pain about the vital viscera or parts adjacent impedes the respiration, it is a bad sign; and in an acute pleurisy patient’s often suffocate themselves when they are no longer able to dilate the thorax, to avoid the severity of the pain: and hence the blood returning from the head by the veins, not being able to discharge itself into  
the

<sup>t</sup> Aphor. 50. Sect. IV. Charter. Tom. pag. 167.

<sup>u</sup> Holler. Comment. in Coac. Hippocrat. pag. 467.

the right ventricle already full from the free course of the blood through the lungs being impeded for want of respiration, the encephalon is compressed by the vessels distended with blood; hence the patient frequently lies stupid and half asleep in the worst kind of pleurisy, hardly any longer complaining of the pain, though in the mean time a very quick and difficult respiration denotes the greatest danger. Hence perhaps Hippocrates <sup>w</sup> observes to us, that a frequent respiration denotes pain or inflammation in the parts above the diaphragm. But Galen <sup>x</sup> well remarks, that the respiration may be injured if other parts also are in pain, which are obliged to move in inspiration; whence the same may happen from the liver, stomach, spleen, and other viscera, being inflamed or in pain. Hence Hippocrates gives us a more general rule in his coan prognostics <sup>y</sup>, namely, *Respiratio, quæ frequens & parva est, inflammationem & dolorem in locis principalibus significat*; ‘that the respiration which is quick and ‘short, denotes a pain and inflammation in the ‘principal parts or organs.’

But even an irregular respiration affords a fatal presage. But thus is the respiration called when it is not continued in the same manner, but at one time it is more violent, and at another more obscure. Such was the slow and deep respiration for a time, which afterwards became short in the phrenitic woman mentioned by Hippocrates <sup>z</sup> to have died on the twenty-first day of the disease, and in whom he tells us the respiration was large and

<sup>w</sup> In Prognosticis textu 24. Charter. Tom. VIII. pag. 607.

<sup>x</sup> De Respirat. diffic. Lib. I. cap. 12. Charter. Tom. VII. pag. 232. <sup>y</sup> N<sup>o</sup> 261. Charter. Tom. VIII. pag. 866. <sup>z</sup> Lib. III. Epidem. ægrot. 15. Charter. Tom. IX. pag. 309.



and slow even to the last. A like respiration he observed in another patient <sup>a</sup> who expired phrenitic on the twenty-fourth day of the disease. Therefore he tells us that such a respiration denotes a delirium or a convulsion <sup>b</sup>. To an inordinate respiration also belongs that in which there is a deep or strong inspiration, and a small expiration; and on the other hand <sup>c</sup>, if the inspiration is small, but followed with a violent expiration, or at least when it seems to be violent, from the great efforts used by the patients when they blow out the air with their cheeks distended; which patients Hippocrates <sup>d</sup> calls in another place *efflant*. Hitherto also belongs a sobbing respiration in which the air is called in twice in a manner, one inspiration being doubled upon the other <sup>e</sup>. Such a kind of breathing we frequently observe in crying children, and sometimes in patients: thus in Philiscus <sup>f</sup>, who expired on the sixth day of the disease, the respiration continued large and slow even to the end, the breath being catched, or as it were, called back, as Hippocrates tells us. He seems also to call the like anomalous respiration in another place <sup>g</sup> by the name of a clashing respiration; Celsus <sup>h</sup> translating that passage in the following words; *Quorum faucibus in febre illiditur spiritus, instat his nervorum distensio*; 'that they who have a collision of the air in the throat or fauces in a fever, are soon after to have convulsions.' But a sorrowful and groaning respiration, which is equally condemned

<sup>a</sup> Ibid. ægrot. 16. pag. 310. <sup>b</sup> In Prognost. textu 24. Charter. Tom. VIII. pag. 607. In Coacis Prænot. N° 261. Ibid. pag. 866. <sup>c</sup> Ibid. in Coacis. <sup>d</sup> Ibid. N° 67. pag. 856. <sup>e</sup> Ibid. N° 261. pag. 866. <sup>f</sup> Epidem. 1. ægrot. 1. Charter. Tom. IX. pag. 99. <sup>g</sup> Aphor. 68. Sect. IV. Charter. Tom. IX. pag. 178. <sup>h</sup> Lib. II. cap. 7. pag. 64.



demned in acute diseases by Hippocrates<sup>i</sup>, is also to be referred to this place.

He also condemns a cold respiration as fatal but a hot respiration in which the expired air is in a manner smoaky and burnt up, (see §. 739, is likewise pronounced by him to be fatal, though less than the cold respiration<sup>k</sup>. The text indeed has it feverish, but as there is no sense to be applied to that word in this place, and as it is opposed to a cold respiration, therefore it seems that it ought to be read fiery. But a cold respiration denotes that a gangrene has already invaded the lungs, and therefore is most certainly fatal. But a hot respiration denotes the most intense burning heat about the vital viscera, and consequently it presages great danger; yet it is not absolutely so certain a sign of immediate death as the cold respiration.

As the lassitude or sense of weariness is more severe, and as the weakness is greater.] Hippocrates<sup>l</sup> tells us, that spontaneous lassitudes denote diseases, and which being frequently observed when there is an inflammatory thickness of the blood, they dispose to acute diseases. When therefore there is a great lassitude, an imperviousness of the blood may be reasonably feared, more especially in the beginning of diseases; but in the end the body being exhausted by disease, and especially after profuse evacuations, a weakness and lassitude may follow merely from a deficiency. See what has been said under the title of weakness in fevers.

The tossings of the body more frequent.] This is that restlessness in diseases, which obliges the patient

<sup>i</sup> Aphor. 54. Sect. VI. Charter. Tom. IX. pag. 286.

<sup>k</sup> Coac. Prænot. N° 261. Charter. Tom. VIII. pag. 866.

<sup>l</sup> Aphor. 4. Sect. II. Charter. Tom. IX. pag. 46.

patient to be continually changing his posture of body, in order to relieve the most troublesome anguish; and this is always a very bad sign; whereas an easiness in supporting the disease is always esteemed one of the best signs. See what has been said on this subject, under the title of anguish in fevers.

As the patient oftener chuses to lie upon his back with his limbs stretched out.] It is a good sign in diseases, if the patient lies in the same posture which he is used to in health, as Hippocrates<sup>m</sup> observes. But in what manner people in health lie, he describes in the same place, as we observed before upon another occasion in the comment to §. 211, where we treated of procuring the natural union to parts wounded. For the best posture is for the patient is to lie on either side, with his arms, legs, and neck, a little extended; for in this manner lie most people in health. But the more the posture in which the patient lies, differs from that which is usual in health, it is so much a worse sign in the disease. When therefore the patient lies stretched out upon his back, the posture is the same with that which is usual to a dead body, into which it naturally falls by its own weight, and therefore it shews a weakness of the powers. For as Galen<sup>n</sup> well remarks, all the muscles are not idle when a person is sleeping, but some of them continue to act when a healthy person lies upon either side; for if a dead human body is placed in that posture, it immediately tumbles either upon its back or belly, according as it inclines by its own weight, either one way or the other.

<sup>m</sup> Hippocrat. in Prognost. textu 13, & seq. Charter. Tom. VIII. pag. 600. <sup>n</sup> Lib. II. de Motu muscul. cap. 4. Charter. Tom. V. pag. 386, 387.



other. Thus we see that people dying lie flat in a supine posture, and in the last article of death stretch out all their limbs, 'as if they were willing still to promote the distribution of the humours through the limbs, by giving all the vessels as strait a direction as possible: therefore, it is evident such a posture of the patient's lying denotes that the disease inclines to death. The reason is therefore evident, why Hippocrates<sup>o</sup> condemns such a posture of lying; and says, that it is still worse if the patient lies with his body bent towards the feet, or with his arms, neck and legs unequally dispersed and naked, and continuing in sleep with the mouth open; or when lying upon their back, they draw up their legs and remove them at a great distance from each other; or else lie prone upon their belly, unless they are accustomed to lie so in health; or lastly, when in the height of the disease they desire to be continually sitting upright in the bed. For all these postures and habits are very different from that in which healthy people usually lie.

As the reason and passions of the mind appear more disturbed at any thing they are used to.] Even the common people know it to be one of the worst signs, if the patient is destitute of his usual passions of mind, or is affected with others perfectly opposite. For if the patient has no further regard for his wife, children, or friends, every one gives him up to fate as lost; and on the contrary, they conceive great hopes of a recovery, if the patient is concerned about those whom he loved when he was well. Whence the reason is evident, why Hippocrates condemns a fierce answer from a person of a mild disposition; as also if the patient is for doing something which he is

<sup>o</sup> In Prognosticis Charter. Tom. VIII. pag. 601, & seq.



is not accustomed to, or has unusual thoughts raised in his mind; and on the contrary, is not affected at things to which he has been accustomed (as we said before upon another occasion in the comment to §. 702. in treating of a delirium in fevers.) For it denotes that then the natural state of the common sensory begins to be changed by the disease, upon which the reasoning and passions of the mind depend.

As the appetite is more destroyed, and the digestion more difficult.] The first thing indicated in the general cure of fevers (as we observed at §. 598.) was to maintain or keep up the patient's life and strength; and it appeared from what was said at §. 599, that this indication required fluid aliments, and drinks easy of digestion, and averse to all putrefaction, &c. But even the best aliments of this kind will avail nothing if there is not strength enough remaining in the patient to change the ingested nourishment into his own nature, so that it may be retained, subdued, and distributed throughout the body. When therefore the appetite is so far destroyed that the patient has an aversion to nourishment of all kinds, or immediately rejects them by vomit as soon as taken, or else is greatly oppressed with anguish after them, in that case little good can be expected; but the patient's strength being daily more exhausted by the disease, it will not be sufficient to carry him through the concoction to a crisis. Also from these symptoms we know that the viscera, which serve for the taking in, retaining, and digesting the aliments, are greatly injured in their functions by the disease; and therefore the loss of appetite and a difficult digestion will be mischievous, both as a sign and as a cause.

As the urine is redder.] That redness of the urine is a sign of internal heat, was said before at §. 673. But it was proved (§. 675.) that the increase of heat in fevers was owing to a more violent attrition betwixt the parts of the fluids amongst each other and against the sides of the vessels, and therefore the redder the urine appears, so much the greater must be the heat and attrition which preceded. All those disorders therefore may be from thence foreseen which were enumerated at §. 100, and 689, and particularly a degeneration of the humours into a putrid acrimony, with a destruction of the most tender vessels. Hence the reason is evident, why Hippocrates<sup>p</sup> ranks very red cloudy urines without a sediment among the signs of a future delirium.

As the urine is more thick, turbid, and with a less sediment.] For as we said at §. 731, such urine greatly recedes from its healthy condition, and therefore denotes a great alteration made in the humours by the fever. But since the urine contains the water of the blood with its salts rendered more acrid and inclined to be alkaline, the oily parts of the blood being likewise rendered more acrid and nearly putrid, and its subtle earth greatly volatilized or attenuated by attrition<sup>q</sup>; it is therefore evident, that then the urine must become thicker, when it is more highly saturated with these contents. But the more violent the fever, so much the greater is the attrition and degeneration of the saline and oily parts of the blood towards a greater acrimony; and therefore the quantity of those particles will be so much the larger, which ought to be expelled from the body by the urine.

<sup>p</sup> In Prorrhetic. Lib. I. Charter. Tom. VIII. pag. 719.

<sup>q</sup> H. Boerhaave Institut. Sect. 375.



urine. But if all these particles continue intimately mixed together in the urine of febrile patients, they make it of a more or less intense red colour, chiefly according to the different proportion of the oily parts intermixed after they are become too acrid. But if the quantity of the contents of the urine is so great, or the proportion of its diluent vehicle so small, that the parts which lie dissolved in the urine cannot be equally sustained, it appears turbid and opake sooner or later, according to the different quantity and nature of the contents, with the greater or less degree of cold to which such urine is exposed. For we see that by the winter's cold the urine of healthy people becomes thick and turbid, whereas only by increasing the heat it becomes very thin and limpid. The same likewise happens when the watery parts of the blood are dissipated by sweats in the summer heats, whereby the urine is rendered thus red and acrid, and sometimes it very suddenly becomes turbid and opake; but upon pouring on hot water it becomes pellucid, as it also does by discharging more warm urine into it which is more dilute: hence the ignorant are often surpris'd, when they find the urine which they discharged pellucid in the evening before sleep, is in the morning rendered turbid, and soon after becomes again pellucid, when they have mixed with it more recent and warm urine. But when those parts which can no longer remain dissolved separate from the urine, if they are specifically heavier than the liquor in which they float, they sooner or later fall to the bottom, according to the excess of their specific gravity; but when they are of the same weight with that of the containing liquor, or when the cohesion of the parts of that liquor is greater than can be broke through by the receding particles, they will then continue

suspended in the same place without subsiding, and the urine will continue opaque and turbid: Whether or no all these small particles have not been so far divided by violent attrition, that by increasing their surface their specific weight is proportionably lessened? For thus we know for certain, that mercury, the most weighty of fluids, may be so far attenuated by fire as to fly in the air. Such a urine therefore denotes a violent attrition of the parts of the fluids against the vessels; an abrasion or wasting of the solid parts of the body, and consequently that the smallest and most tender vessels suffer great violence; that the humours of the body deviate greatly by disease from their healthy state; and that the saline and oily parts rendered more acrid are therefore expelled in a greater quantity by the urine, and are almost destitute of the thinnest and most diluent part of the humours; whence there appears to be great danger from such an urine discharged in continued putrid fevers.

Hence the reason is evident, why Galen<sup>r</sup> says; *Quod si turbida (urina) sit, qualis veterinorum apparet, crudis vocatis humoribus refertas quidem venas esse indicabit, non vero quiescere circa illos naturam, sed validè concoquere*: ‘That if the urine is  
 ‘turbid, appearing like that which is stale or  
 ‘voided by cattle, it denotes that the vessels are  
 ‘indeed filled with crude humours, and that nature is not unactive upon them, but powerfully  
 ‘concocts.’ He afterwards commends a speedy separation of the gross from the liquid parts; and that when the sediment is light, white, and uniform, it indicates nature is about to separate the  
 crude

<sup>r</sup> De Sanitate tuenda, Lib. IV. cap. 4. Charter. Tom VI. pag. 121.



crude humours ; otherwise the reverse. He afterwards adds this general rule ; *Verum omnium turbidarum urinarum generalis nota tibi sit separatio, vel cito, vel tarde facta, aut omnino nullo* ; ‘ but all  
 ‘ turbid urines point out in general a separation  
 ‘ made speedily or slowly, or not at all. The first  
 ‘ affords the best sign, the second is not so good,  
 ‘ and the third is worst of all.’

But these turbid urines are either discharged at first in that condition, or become so and continue turbid, after being first evacuated in a pellucid state, as we very frequently see in these fevers. Hippocrates<sup>s</sup> calls these urines subjugal, because this urine is naturally observed from horses, cows, and other animals ; and he gives us a description of this urine in the following manner, in the wife of Philinus, who lay ill of a fever on the fourteenth day after lying-in : *Undecimo die morbi minxit urinam confertim copiosam, crassam, albam, quale quid ex urinis subsidentibus fit, quando returbantur ; multo tempore relicta non subsidebat. Color & crassities similis erat subjugalium. Talia me jebat, qualia ego vidi* ; ‘ On the eleventh day of the disease she discharged a great quantity of urine, which was  
 ‘ thick and white, almost like what is observable  
 ‘ in subsiding urines when they throw down a sediment ; yet after standing a long time nothing  
 ‘ subsided. Its colour and consistence was like  
 ‘ the urine of cattle ; and this sort of urine which  
 ‘ she made I have also observed in others.’ But he universally condemns such urines, for they do not appear but in fevers attended with dangerous symptoms. In another place,<sup>t</sup> he observes, that

E 3

such

<sup>s</sup> Epidemicor. I. ægrot. 4. Charter. Tom. IX. pag. 104.

<sup>t</sup> Aphor. 70. Sect. IV. ibid. pag. 180. & Epid. VII. pag.

such urines denote pains of the head, either present or about to happen. And in his prognostics <sup>u</sup>, after saying that a thin yellow urine is a sign of crudity, he adds, that thick urines are more fatal. But more especially the worst consequences are to be expected, if the urines continue many days without a sediment; for if they begin to subside, we may hope for better consequences. Thus in Pericles <sup>w</sup>, on the first day there was a large quantity of turbid white urine discharged, which did not deposit a sediment; on the second day it was indeed thick, but subsided more, but on the third day it was concocted, containing much sediment; and on the fourth day a copious warm sweat perfectly terminated the disease, and put the patient out of danger.

Such thick urines therefore denote great crudity of the disease in fevers, and a great force exerted by nature upon the morbid matter; and therefore they demonstrate certain danger in most acute diseases, unless they are soon changed for the better; in a slighter disease they denote a long continuance and a difficult crisis.

Or appears thinner and more watery.] For such an urine denotes those parts of the humours to be retained in the body, which ought naturally to be evacuated by these passages; namely, the oils and salts of the blood rendered more acrid, and still disposed to be more offensive, because in an acute continual putrid fever, they all incline sooner to corruption than in health. This kind of urine is also sometimes observed, when the blood, rendered impervious by an inflammatory thick-ness, refuses to mix with watery liquors however copiously

<sup>u</sup> Charter. Tom. VIII. pag. 635. <sup>w</sup> Epidem. 3. ægrot. 6. Charter. Tom. IX. pag. 301.



copiously taken into the body; in which case the drink taken in immediately escapes by the urinary passages. Hence the reason is evident why Hippocrates \* affirms, *Mala est quoque (urina) quæ post potum cito mingitur, maximè in pleuriticis & peripneumonicis*; 'that the urine is also bad which is very soon made after drink, more especially in pleuritic and peripneumonic patients.' So also in another place he condemns a thin yellow urine, when he says, that a thin and yellow urine denotes crudity in the disease; but if the disease is chronical or of long standing, the appearance of such a urine denotes danger, lest the patient should not be capable of supporting the disease, and of making a concoction in the urine<sup>y</sup>. See also what has been said of such a urine in the commentaries to §. 712.

Less in quantity, and more difficult to be retained.] For the same reason the urine which is small in quantity is also condemned, because it denotes that the blood deprived of its diluent vehicle, cannot supply a sufficient quantity of lymph to wash out the more acrid parts. And therefore generally such urine which is made in small quantities is commonly very sharp, and apt to excite a stranguary, or a continual and troublesome inclination to make water. It is also a very bad sign in these diseases, if the urine runs away from the patient unknown to him, or is discharged without the influence of the will, for then there is always a considerable injury of the brain from the disease: and hence this symptom seldom appears but in delirious, phrenitic and comatous patients.

E 4

This

\* Coac. Prænot. N<sup>o</sup> 579. Charter. Tom. VIII. pag. 886.  
<sup>y</sup> In Prognosticis Charter. Tom. VIII. pag. 634, 635.

This is observed by Hippocrates<sup>z</sup>, when he says, *Quæ urinae non recordantibus effluunt, perniciosæ*; ‘the urine which runs away unknown to the patient is pernicious:’ and afterwards he subjoins; *Num ab his mejuntur, ac si sedimentum conturbaveris*; ‘for by these the urine is discharged as if it was shook together with a sediment;’ namely, turbid and like the urine of cattle. And again<sup>a</sup>, *Quos latet urina procidens, & pudendum contrahitur, desperati*; ‘those patients are without hopes who have a contraction of the pudenda, and who are not sensible of the discharge of their urine.’ But that text admits of another reading which seems to be better, and is given us by Foesius and Duretus<sup>b</sup>; namely, that those who are insensible of a discharge of the urine from the pudenda, are given up as incurable.

As the motions of the muscles are more trembling, the patient refusing to be touched, playing or catching with his fingers, &c.] For all these denote that the common sensory is injured, whence a delirium, convulsions, &c. are to be feared. See more upon this subject under the title of trembling in fevers; likewise in the comment to §. 702, where we treated of these as the signs of a future delirium. But Hippocrates<sup>c</sup> is almost the only one who has remarked this symptom, in which the patient refuses to be touched; he calls it a flying from the physician’s hand, and remarks that it is a bad presage. For when a physician applies his fingers to such a patient in order to examine the pulse, he suddenly snatches away his hand; but if

<sup>z</sup> Prorrhēt. Lib. I. text. 28. Charter. Tom. VIII. pag. 718.

<sup>a</sup> Coacis Prænot. N° 474. Charter. Tom. VIII. pag. 879.

<sup>b</sup> In Coacas Hippocrat. pag. 363. <sup>c</sup> In Coacis Prænot. N° 61. Charter. Tom. VIII. pag. 855.



If they are asked for what reason they draw away  
 their hand, they answer they know not. In that  
 case there seems to be so great an irritation in the  
 common sensory, that the whole is disturbed, even  
 from the slightest alteration of the nerves, and in  
 distant parts of the body ; and therefore convul-  
 sions are to be feared from thence in a little time.  
 For the same reason when these patients refuse to  
 see light, Hippocrates <sup>d</sup> remarks it to be a sign  
 equally pernicious in diseases.

As the eyes are more sorrowful.] An attend-  
 ance ought to be given to all these particulars ;  
 and therefore Celsus <sup>e</sup> very well directs, *Medicus*  
*neque in tenebris, neque a capite ægri resideat, sed il-*  
*lustri loco adversus eum, ut omnes notas ex vultu quo-*  
*que cubantis perspiciat ;* ‘ that the physician should  
 sit neither in darkness nor far from the patient’s  
 head, but opposite to him in a light place, that  
 he may perceive all the signs that can be taken  
 from the countenance of the patient.’ But the  
 eyes usually afford a great many of the most cer-  
 tain signs in diseases ; and no wonder, since even  
 in healthy people they point out the various affec-  
 tions of the mind, and often the first attacks of  
 diseases appear earliest in the eyes. When the fit  
 of a quartan first invades, there is a paleness of the  
 eyes ; when a person suddenly faints away, the  
 usual brightness of the eyes is first diminished.  
 Hippocrates knew how to presage a future deli-  
 rium from the eyes ; see the comment to §. 702.  
 In weak people after preceding diseases, the eyes  
 generally afford the first signs of their gaining  
 strength. It was therefore not without reason that  
 Hippocrates <sup>f</sup> pronounced, *Oculi ut valent, ita to-*  
*tum*

<sup>d</sup> In Prognostic. Sentent. 10. Charter. Tom. VIII. p. 597.  
<sup>e</sup> Lib. III. cap. 6. pag. 130. <sup>f</sup> Epidemicor. 6. Charter.  
 Tom. IX, pag. 505.

*tum corpus*; ‘ that according to the condition of the eyes, so is that of the whole body.’ It is therefore one of the worst signs in diseases, when the natural brightness of the eyes is depraved, which depends upon an equable repletion of the vessels, and being continually moistened with very thin lymph, by which the eye is kept clear. Hence in dying people the eyes appear dry, wrinkled and dusty; for the eyes would soon be rendered foul by the dust which floats in the air, if they were not frequently to be washed by the continual motion of the eye-lids, and a very thin lymph which distils over them. Hence toward death, for want of this moisture, and from the patient’s lying insensible and stupid, these sores are not washed off but accumulated, and afford the most sorrowful image of approaching death, and the common people distinguish this sign, by saying, that the eye-strings are broke, or that the sight is gone, and therefore that it is over with the patient.

Hence Hippocrates § makes it a bad and pernicious sign, *si oculi pervertantur, aut alter alter minor sit, vel alba fuerint rubra, aut livida, vel venulae nigrae in illis sint, aut sordes circa oculos appareant, aut sublimiores vel prominentes (oculi) vel admodum cavi facti, vel supercilia curva, aut rigida maculosa, aut visus squalidus & sine splendore, &c.* ‘ for the eyes to be perverted, or for one to be less than the other, or for the white of them to be red, livid, or interspersed with black veins, or for foul matter to appear about the eyes, or for the eyes to be turned upward too much, or to be too prominent, or become very hollow, or for the eye-lids to turn back or appear rigid and full.

§ In Prognost. Sentent. 10. Charter. Tom. VII. pag. 597.



full of spots, or for the cornea to appear rough or dry without brightness, &c.' The like observations he also gives us in his coan prognostics<sup>h</sup>, where he adds, *si circa oculos tenuem concretionem albam habeant*; 'if the patient has a thin white concretion about the eyes;' which kind of pellicle, arising from the humours collected and inspissated, often appears obscuring the sight in dying people. Hence again he says in another place<sup>i</sup>, *Oculus hebescent pravum, & fixus & caliginosus malum*; 'that the eye being dull and depraved in its sight, fixed and dim or obscure, is a bad sign.' But on the other hand, he esteems a brightness of the eyes one of the best signs in diseases; and hence he says<sup>k</sup>, *Oculorum puritas, & alba illorum ex nigris vel lividis purari, criticum. Si igitur cito depurentur (oculi,) ceterum crifim significat; si tarde, tardiores*; 'that a clearness of the eyes, and the white of them being free from livid or black spots or vessels, is a critical sign. If therefore the eyes soon clear up, it denotes a speedy crisis; but if they clear up slowly, a slow crisis.'

Sometimes also it happens, that the patient's countenance is sorrowful, with or without tears, though the eyes do not as yet appear dry or dusty; and if you ask what is the cause of his grief, he denies that he has any. This is always one of the worst signs, which I have several times observed in patients. But among the bad signs Hippocrates<sup>l</sup> mentions, *si per somnos, palpebris non commissis,*

<sup>h</sup> No 219. Ibid. pag. 864.

<sup>i</sup> In Prorrheticis, Lib. I. Charter. Tom. VIII. pag. 73.

<sup>k</sup> In Coacis No 218. Ibid. 864.

<sup>l</sup> In Prognosticis Sentent. 11. Charter. Tom. VIII. pag. 599. & Aphor. 52. Sect. VI. Charter. Tom IX. pag. 285.

*commissis, aliquid ex albo subappareat, neque ex diarrhœa aut purgantis potione hoc factum fuerit neque æger hoc modo dormire solitus sit; ‘ a gaping*  
*‘ of the eye-lids in the patient’s sleep, so as to*  
*‘ expose some of the white of the eye, when this*  
*‘ does not arise from a diarrhœa or purging*  
*‘ draught, nor the patient accustomed to sleep in*  
*‘ that manner.’ For he observes that this is a*  
*very fatal sign. As also si in febre non intermit-*  
*tente, labium, palpebra, supercilium, aut oculus, au-*  
*nasus pervertatur; si non videat, si non audiat, im-*  
*becillo jam ægro. Si quid horum acciderit, mor-*  
*proxima est; ‘ if in a fever not intermitting, the*  
*‘ lip, eye-lid, eye-brow, eye, or nose appear dis-*  
*‘ torted or perverted; if the patient cannot see*  
*‘ nor hear, being extremely weak. If either of*  
*‘ these happens, death is at hand <sup>m</sup>.’*

Moist with involuntary tears.] These are the tears which so frequently appear in dying people; whence the poet tells us, that the eyes swim in the midst of death. Hippocrates <sup>n</sup> condemns a watering of the eyes with tears without a cause; for if the patients cry from hearing of the danger of death, or from seeing those who are dear to them, it is rather a good sign, as they are then moved by the usual passions of the mind. Hence in another place <sup>o</sup> he pronounces *in acutis, male habentibus ægris, voluntarias lacrymas bonas dixit; involuntarias vero malas; ‘ voluntary tears a good*  
*‘ sign in patients lying ill of acute diseases; but*  
*‘ involuntary tears are bad.’* He observes also that this takes place not only in fevers, but like-  
 wise

<sup>m</sup> Aphor. 49. Sect. IV. Charter. Tom. IX. pag. 166. In Prognost. Sentent. 12. Charter. Tom. VIII. pag. 600.

<sup>n</sup> Ibid. Sentent. 10. pag. 597.

<sup>o</sup> Epidem. 6. Textu 21. Charter. Tom. IX. pag. 380.



life in other diseases <sup>p</sup>. But he excepts only one case, in which involuntary tears denote a future crisis by a bleeding at the nose; namely, if those tears are not accompanied with any bad signs. For in another place <sup>q</sup> he says, *Quibus in febris utis, maxime in ardentibus, invitæ effluunt lacrymæ, et sanguinis e naribus profluvium expectandum est, & reliqua perniciofa non habuerint: male enim hæmorrhagiam, sed mortem portendunt;* in those who have an involuntary flux of the tears in acute, and especially in ardent fevers, in them we are to expect a flux of blood from the nose, provided they have no other pernicious symptoms; for if there are other bad signs, they portend not an hæmorrhage but death.' But Galen <sup>r</sup> observes, that physicians ought not to be frightened, though such a patient could be delirious, and seem to have a subfultus of the tendons, provided together with the involuntary tears, there are other signs of a future hæmorrhage at the nose; such as a pain in the head, which did not attend before, with a tension and pain of the neck, a palpitation or throbbing in the face, redness of the eyes, &c. for in that case he says, these are all signs of the humours tending upwards. Even he believes, these involuntary waterings of the eyes with tears, to be such an infallible sign, that he asserts in the like case, *Quod si inviti illacrymentur, aut splendores se cerere sibi videantur, aut manus admoveant naribus, velut scalpentes, tunc jam non adfore, sed adesse sanguinis fluxionem conspicias;* ' that if the patients  
' have

<sup>p</sup> Aphor. 52. Sect. IV. Charter. Tom. IX. pag. 168.

<sup>q</sup> Epidem. 1. Charter. Tom. IX. pag. 75.

<sup>r</sup> Lib. II. Method. Med. ad Glaucon. cap. ult. Charter. Tom. X. pag. 366.

‘ have involuntary tears, or think that they  
 ‘ shining lights, or apply their hands to their no  
 ‘ as if they would scratch it, you will then  
 ‘ that a flux of blood is not only to superven  
 ‘ but is even that instant at hand.’

These are the principal signs from whence  
 conclude that an acute, continual, and putrid f  
 ver is very dangerous, and inclines to death. B  
 the greater number there are of these bad signs a  
 tending at one time, it is evident that so mu  
 the worse and more fatal must be the disease.  
 the same time it is also apparent, that the progn  
 sis of these diseases does not so much depend upo  
 understanding the causes, as from the certain sig  
 of the functions injured, which denote the co  
 ditions of the disease, whereby they recede mo  
 or less from their healthy state.

## S E C T. DCCXXXV.

**I**F the patient is watchful or disturbed  
 his sleep; if the body is discoloured with  
 purple or livid eruptions; and if the hypo  
 chondria are tense and inflated, the patient  
 near death.

If the patient is watchful or disturbed in h  
 sleep.] What mischiefs ensue from watchings  
 fevers, was said before at §. 708, and from then  
 it is evident how much good may be expected  
 diseases, from a soft and quiet sleep. For th  
 principal hopes are that the patient being refresh  
 by a kind of sleep, will be more easily able to sup  
 port the troublesome effects of the disease, so  
 to hold out till it terminates or comes to a crisi  
 But when the sleep is difficult and disturbed, th  
 patient



patients being often awakened in a fright, or if they lie in a profound sleep, but upon waking find no refreshment from thence, but rather an increased weariness of the body and greater weakness; there are then but small hopes, the disease being commonly attended with the worst symptoms, and the event usually fatal. Hence Hippocrates<sup>s</sup> condemns turbulent and fierce wakings in the sleep like convulsions; and in another place<sup>t</sup> he pronounces frights or convulsions in the sleep to be bad in fevers: even he lays down the following as an universal rule in practice; *Quo in morbo somnus laborem facit, lethale, si verò juvet somnus, non lethale*; ‘when in a disease sleep occasions labour or pain, it is a fatal sign, but if the sleep relieves it is not fatal’.<sup>u</sup>

If the body is discoloured with purple or livid eruptions.] What an ill sign such eruptions are in diseases, was demonstrated at large at §. 723, where we treated of febrile eruptions: for they are in a manner mortifications, and denote a gangrenous disposition of the disease. But it must be observed, that these pustules ought well to be distinguished from those purple and livid spots, which sometimes appear even from slight fevers in scorbutic people. But those scorbutic spots are of a more irregular figure, and generally broader, and may be known from the signs of a scorbutic cacochymy preceding, and from an absence of the bad symptoms.

If the hypochondria are tense and inflated.] What the ancient physicians properly understood by the name of the præcordia or hypochondria, was

<sup>s</sup> Prorrhetic. Lib. I. Charter. Tom. VIII. pag. 779.

<sup>t</sup> Aphor. 67. Sect. IV. Charter. Tom. IX. pag. 177.

<sup>u</sup> Aphor. 1, Sect. II. ibid. pag. 43.

was said before in the comment to §. 701, where it appeared that the upper orifice of the stomach with the hypochondria, strictly so called, and the epigastrium, are included in that term, together with the liver, spleen, stomach, pancreas, &c. which they contain. Hippocrates seems always careful to observe in diseases, the disposition of the hypochondria; and from thence he derived many presages, as well with respect to the patient's recovery, as death. But he lays down the following universal rule in practice; *Optimum quidem hypochondrium est, si doloris expers, & molle ac æquabile, & in dextris & in sinistris. Inflammatum autem, vel dolorem adferens, aut tensum, aut dextrum a sinistro varium, aut contra sinistrum a dextro hæc omnia, attendere oportet*; 'that the hypochondrium is best which is free from pain, soft, and equable, alike both in the left and right side. But if it appears inflamed, painful or tense, or if the right differs from the left, or the left from the right, in all these cases proper regard is to be given to the disease<sup>w</sup>.' But in his coarse prognostics<sup>x</sup> adds, *signum morbi mali moris esse, si hypochondrium inflammatum, inæqualiter se habens, aut dolens fuerit*; 'that if the hypochondrium is inflamed, unequally swelled or painful, it is a sign the disease is of an ill condition.' But he more especially condemns it if those parts are distended with an inflammatory tumor; and justly, since it denotes the viscera there seated to be very much injured, and either that sudden death or a very dangerous suppuration is to be feared in those parts: and therefore he says, *Tumor autem durus & dolens in hypochondrio pessimus quidem, si totum* hypochon-

<sup>w</sup> Hippocrat. in Prognost. Charter. Tom. VIII. pag. 610.

<sup>x</sup> N<sup>o</sup> 280. ibid. pag. 867.



*hypochondrium occupaverit : sin vero in altera tantum parte fuerit, minus periculosus, qui in sinistra. Verum significant tales tumores in initio quidem, periculum esse mortis brevi futuræ ; si vero febris vigesimum diem superet, nec tumor interea subsidat, in suppurationem vertitur ;* ‘ but a hard and painful tumor in the hypochondrium is indeed a very bad sign, if it occupies the whole ; but if it is only in one part of the left hypochondrium, it is less dangerous. But such tumors in the beginning of the disease, signify that there is danger of speedy death ; but if the disease is past the twentieth day, and the tumor does not in the mean time subside, it turns to a suppuration<sup>y</sup>.’ Yet he observes that sometimes bleeding at the nose happens, and is very useful in the first stage of such diseases ; and therefore he orders the physician to be attentive whether the patient has a pain in his head, or perceives a dimness in his sight ; which are signs denoting a flux of blood about to follow from the nose. For a tension of the hypochondrium both on the right and on the left side, he ranks among the signs of a future hæmorrhage from the nose<sup>z</sup> : but then he particularly observes that such a tension is without pain or inflammation. It is therefore evident that a tension of the hypochondria is always bad if a pain attends at the same time ; although sometimes, especially in young people, a salutary hæmorrhage from the nose in the beginning of the disease may prevent all further mischief.

VOL. VII.

F

But

<sup>y</sup> In Prognost. Charter. Tom. VIII. pag. 612, 613. Coac. Prænot. N<sup>o</sup> 281. ibid. pag. 867. <sup>z</sup> Epidem. 1. Charter. Tom. IX. pag. 60. & in Prognosticis Charter. Tom. VIII. pag. 682.

But Hippocrates <sup>a</sup> acknowledges those tumors of the hypochondria to be less dangerous, which are soft and without pain, and which yield to the pressure of the finger, for they seem to be flatulent: and if those tumors occupy the hypochondria, strictly so called, they seem to be lodged in the stomach or intestinum colon. Hence he says in another place <sup>b</sup>, *At in dextris sublati tumores, qui magna quidem ex parte molles sunt, maximèque prementi si quid submurmurârit, non admodum maligni existimandi sunt*; ‘but tumors arising in the  
 ‘right hypochondrium, which are in a great part  
 ‘soft, and more especially if upon being pressed  
 ‘they yield a sort of murmuring noise, they are  
 ‘not to be esteemed very malignant.’ From whence it would seem as if the hypochondria being tense and inflated, ought not to be always esteemed a very bad sign. But here we consider the concurrence of many fatal signs together, to which if such an inflation and tension of the hypochondria is joined, one may justly conclude that death is at hand. For in this case the distension arises from a putrefaction of humours generating elastic matter, as also from a palsy of the stomach and intestines, whence they no longer resist dilating causes, but are wonderfully expanded; to which is sometimes joined an inflammatory distension of the liver and spleen. Hence also in dying people the whole abdomen is often distended with an uniform tumor, which Hippocrates remarks in his last aphorisms <sup>c</sup>, which yet are esteemed by many to be not genuine. For after having enumerated many other fatal signs in

<sup>a</sup> Ibidem, pag. 614. <sup>b</sup> Epidem. 4. Charter. Tom. IX. pag. 328. <sup>c</sup> Sect. VIII. Aphor. 17. Charter. Tom. IX. pag. 351.



In diseases, he subjoins *Interituris signa hæc manifestiora fiunt, & ventres attolluntur & inflantur*; these signs become still so more manifest, in people who are about to die, when the abdomen is swelled and inflated.' But Charterius in his commentaries to this aphorism, relates the case of a lad who had a quartan fever changed into one acute and continual: this unhappy patient had an inflation of the abdomen before death, and afterwards the flatus was discharged with a considerable noise upon opening the abdomen; and this doubtless from an elastic matter generated by putrefaction, and filling up the cavity of the abdomen. The reason is therefore evident, why a tension and inflation of the hypochondria is to be esteemed a fatal sign in acute continual fevers.

## S E C T. DCCXXXVI.

**T**HE general method of cure before delivered §. 598, requires nothing more than to be varied according to the variety of the things indicating; the violence of the symptoms, condition of the patient, and state of the disease.

The general cure of fevers described at §. 598, and explained more at large afterwards in the following aphorisms, does likewise take place in the cure of this fever, and therefore what has been said there may suffice. But that this general treatment of fevers may be adapted agreeable to particular cases, it ought to be known at the same time what functions are injured, and what sort of regeneration takes place in the solid and fluid parts; for from thence arises the various indica-

tions. In a putrid synochus (see what has been said at §. 730.) we know that many of the humours degenerate from their healthy state, sometimes tending to an inflammatory thickness, and sometimes also inclining to too great a dissolution and therefore the disease though comprised under the same denomination often requires a very different method of cure. For there are two kinds of such fevers observed, both of them continuing both of them corrupting the humours, and injuring almost all the functions of the body. One of them being joined with a violent inflammation, seated in the larger vessels and grosser humours, attended with a great heat, a hard pulse, and at the beginning of the disease at least the pulse sufficiently strong; and the cure of this kind requires bleeding, cooling clysters, diluent and attenuating medicines, &c. But there is another kind of these fevers observed, in which there is not found so great an alteration in the grosser fluids of the body, but the disorder seems to be seated chiefly in the very thinnest humours: nor are such fevers therefore attended with a great heat, nor are there any signs of an inflammatory thickness, but frequently the grosser juices are dissolved into a diseased thinness. Observation has taught that in this last case such remedies are useful, which are able by an aromatic penetrating virtue, to raise the languishing powers, and expel from the body that latent malignity by sweats, or increase of diaphoresis, which is often received by an epidemic contagion; as is observed in the plague and pestilential fevers. Hence it has been customary to call these remedies alexipharmic or expulsive; which more especially rue, scordium, angelica, &c. have been recommended in all ages, in which there is a penetrating spiciness; while at the same time the

the



there is no such great danger of too much increasing the febrile motion, more especially if they are drunk infused in water. In this kind of fever, bleeding, clysters, and the like kind of weakening medicines are prejudicial. But when such alexipharmic medicines are used in those fevers which are accompanied with an inflammatory thickness of the blood, they make every thing worse; the ill effects of which bad practice, Sydenham so frequently lamented in his time. For a malignant fever spreads only at times, and inflammatory fevers are much more numerous; whether the inflammatory thickness of the blood pre-existed before the fever, or whether it was introduced during the violence of the fever itself by a dissipation of the thinnest humours, and an inspissation of the rest. For at that time physicians threw their patients into the greatest danger in all acute diseases under apprehensions of malignity, whence they had recourse to the use of the hottest cordials and alexipharmics. Hence Sydenham<sup>d</sup>, who was bold enough upon a generous principle to oppose himself to the torrent of this practice, did not hesitate to say, that the notion or term of malignity in fevers, had been more destructive to mankind than the invention of gun-powder, because physicians more especially called those fevers malignant in which there was a more intense degree of inflammation than in others. But a physician who attends to all the appearances of a disease will easily distinguish those fevers which partake of inflammation, from such other continual putrid ones, as from their irregular symptoms, sudden weakness, and less intense heat, are generally called malignant. But since the main

<sup>d</sup> In Schedula monitoria de novæ febris ingressu, pag. 681.

of the cure lies principally in ruling or keeping the force of the fever under a due moderation, that it may not be raised too high, nor be rendered too languid; it will therefore be proper to consult what has been said upon this subject, with regard to the cure of fevers in general, in the commentaries to §. 609 to 612. And since also the violence of the symptoms as we there observed, point out the too great force of the fever, more especially the intensity of the heat; it is therefore evident that a principal regard ought to be had to those symptoms.

But that a difference in the cure will be necessary, according to the different condition, age, sex, and habit of the patient, &c. no one doubts but of these we also treated at large in the comment to §. 602, and the other aphorisms relating to the cure of fevers in general; where we also spoke of such things as related to the different stage of the disease, being either in its increase, height or declension. From these places therefore the method of curing continual putrid fevers is to be taken.

## S E C T. DCCXXXVII.

**T**HESE fevers have been called synochi by the ancients, and continent or continual by the moderns, because they have no remission of their heat; but they call those which are continual and remitting §. 727, by the name of syneches or continued.

We said before in the comment to §. 727, that a continual fever, properly so called, is that which continues in one strain from the beginning to the end,



nd. These have been usually called continent or synochi by the school-physicians, concerning which we have just now treated. But where there is observed a remarkable remission and increase of the fever, without ever entirely leaving the patient, it is then called syneches or a continual remittent. But among the ancient physicians *ὑνέχες πυρετοὶ* was used in a more general signification; inso-much, that they seemed sometimes to comprehend by that name those fevers which are at present called synochi, as is evident from what Galen<sup>e</sup> says: *Continuæ & intermittētis nomine bifarium veteres uti videntur. Continuas namque febres appellant interdum quidem omnes quæ ad integritatem non desinunt. Interdum vero non omnes, quæ ad integritatem febres non desinunt, sed illas solas præcipue, quæ ad iudiciū usque nullam permutationem sortiuntur. Ita vero & intermittētes interdum quidem illas solas nominant, quæ ad integritatem desinunt; interdum vero quæ ad integritatem non desinunt, sed insignes faciunt particularium accessionum mutationes in principium, incrementum, vigorem & remissionem.* That the ancients seemed to have used the name of continual and intermittent in a twofold sense. For they sometimes call continual fevers all those which do not entirely intermit or leave the patient. But sometimes they do not intend all such fevers as do not intermit, but such principally as undergo no variation till they terminate. Sometimes also they call intermittents those only which entirely cease; but sometimes they use it for those fevers which do not entirely cease, but undergo considerable changes in their beginning, increase, height, and remission.' He then

F 4

adds,

<sup>e</sup> Commentar. 3. in Lib. I. Epidem. Charter. Tom. IX. pag. 86.

adds, that some of the younger physicians call those fevers which undergo no considerable change, not by the name of *synches*, continual, but of *synochus*, continent, or continued; but those only which did not entirely intermit, but remitted and again increased, they called *synches*. But the ancient physicians have sometimes called these continual remitting fevers by the name of continual, and sometimes by that of intermittents. For when they compared them with continual fevers, as they are now called, they were termed intermittent; and on the contrary, if they compared them with those fevers which entirely cease or intermit, they were called continual: for they are a sort of intermediate fevers, betwixt continual and intermittents.

This seemed necessary to be observed, to prevent confusion or mistake to those, who in learning physic might search into the works of the ancient physicians.

## OF ARDENT FEVERS.

### S E C T. DCCXXXVIII.

**A**MONG these continual fevers, the *causus*, or ardent fever, as it is called, deserves to be particularly considered, because of its frequency, danger, and difficulty of cure.

This fever is called ardent, from the great heat which afflicts patients that lie ill of it; whence it is called (καύσος ἀπὸ τῆς καίειν) or denominated from burning. But the ardent fever, properly so called, is reduced to the class of continual remittents, because it manifests exacerbations or fits of increase, and



and does not run in a continual even course without alteration till it comes to a crisis, as we observe in the synochi or continual fevers. For all authors who have writ upon ardent fevers acknowledge this. Thus Celsus<sup>f</sup>, treating of the cure of an ardent fever, observes, *in ipsis accessionibus oleo & aqua ægrum refrigerandum esse, &c. Si pituita in stomacho coit, inclinata jam accessione, vomere cogendus est*; ‘that the patient ought to be cooled with oil and water in the accessions or increase of the fever, &c. If phlegm gathers together in the stomach, when the accession or increase of the fever is going off, the patient is to be vomited.’ And Galen<sup>g</sup> says, *quod exquisita febris ardens, quum omnia alia servet accuratè tertianæ indicia, eo solo differt, quod neque cum rigore invadat, neque ad integritatem deveniat*; ‘that a true ardent fever strictly keeps to all the signs of a tertian; from which it differs only by not invading with a rigour or shivering, and not leaving the patient entirely.’ Likewise Hippocrates, in treating of an ardent fever, in several places mentions exacerbations or fits of increase, which happen on days either equal or unequal, as we shall declare hereafter. For although other fevers may be called ardent, from the great intensity of their heat<sup>h</sup>, and sometimes continual fevers are thus called, more especially by the modern writers, because in these there is often felt a pricking or smart heat by the touch of the finger (see §. 731;) and even Hippocrates calls the fever in its greatest violence by the name of fire (see the comment to §. 558;) yet it has been customary in our days to give the name of an ardent fever to continual remittents, attended with  
a burn-

<sup>f</sup> Lib. III. cap. 7. pag. 134.      <sup>g</sup> De Crisib. Lib. II. cap. 6.  
 Charter. Tom. VIII. pag. 415.      <sup>h</sup> Galen, ibidem.

a burning heat, and the other symptoms to be enumerated in the aphorism next following.

When therefore intermitting fevers, especially quotidians and tertians are prolonged, or their fits redoubled, so as to leave the patient at no time free from the fever, they may be changed into an ardent and most dangerous fever. Hence Hippocrates<sup>i</sup> says, *Quæ febres non intermittentes tertio quoque die vehementiores sunt, periculosiores; quocunque autem modo intermiserint, citra periculum esse significat*: ‘The fevers which are not intermittent become more violent and more dangerous every third day; whenever they do but intermit, it is a sign they are without danger.’ Of this kind seems to have been that fever which Celsus<sup>k</sup> tells us is by most physicians called the semi-tertian, namely, that other kind of tertian, *longe perniciosius, quod tertio quidem die revertitur, ex octo autem & quadraginta horis fere sex & triginta per accessionem occupat (interdum etiam vel minus vel plus) neque ex toto in remissione desistit; sed tantum levius est*: ‘much more dangerous than the other, which returns on the third day; but then the fit holds almost thirty-six hours out of the forty-eight, and sometimes either more or less; it does not entirely go off in the remission, but is only milder.’ But it is evident, this semi-tertian of Celsus is only a common tertian prolonged so as to have little or no intermission; but as we shall presently declare, the semi-tertian of Galen is different from this fever. If now the tertian should be double, so as to have a new fit on the second day, like that which will follow on the fourth,

<sup>i</sup> Aphor. 53. Sect. IV. Charter. Tom. IX. pag. 162. & in Coac. Prænot. N° 118. Charter. Tom. VIII. pag. 858.

<sup>k</sup> Lib. III. cap. 3. pag. 116.



fourth, the fits being protracted, will easily turn a double tertian into a continual remittent; and Celsus \* seems to have described a tertian under the name of a quotidian, and even to have almost confounded a quotidian with a continual fever; for thus he expresses himself; *Quotidianæ vero variæ sunt, &c. Rursus aliæ sic desinunt, ut ex toto sequatur integritas: aliæ sic, ut aliquantum quidem minuatur ex febre, nihilominus tamen quædam reliquæ maneant, donec altera accessio accedat: ac sæpe aliæ vix quidquam aut nihil remittunt, sed ita, ut cæpere, continuant. Deinde aliæ fervorem ingentem habent, aliæ tolerabilem: aliæ quotidie pares sunt, aliæ impares; atque invicem altero die leniores, altero vehementiores, &c.* ‘ But quotidians are various; for  
‘ some of them go off, so as to leave the patient  
‘ perfectly well: others again in such a manner  
‘ that the fever is indeed in some degree less, but  
‘ yet some relicks of it continue till another fit  
‘ comes on; and others again often remit little or  
‘ nothing, but continue as they begun. Some  
‘ again have a great heat, which is tolerable or moderate in others; some again are every day alike,  
‘ and others vary more or less, becoming one day  
‘ more gentle and another more violent, &c.’

But those continual remitting fevers which arise from the fits of a tertian lengthened out or repeated, and which are worse every third day, Galen† rather chuses to call tertianary or semi-tertianary, because they approach towards the nature of a tertian, and extend almost to an intermission. But a semi-tertianary fever he calls that which is a continued quotidian, (that is to say, which remits indeed, but does not entirely intermit<sup>1</sup>), or forms  
an

\* Ibidem. † Galen, Comment. 2. in Lib VI. Epidem. Charter. Tom. IX. pag. 410. De Febribus, Lib. II. cap 2. Charter. Tom. VII. pag. 128, 129. <sup>1</sup> Galen de febribus, Lib. II. cap. 7. Charter. Tom. VII. pag. 135.

an intermitting tertian: and this kind of fever alone he would have so called, because it is only a tertian during one half of its time; whereas continual remitting fevers arising from the fits of a tertian repeated or continued, are altogether of the nature of a tertian. He seems to have been the more careful in making this distinction, because he derived the origin of continual fevers from putrid phlegm, but of tertians from yellow bile<sup>m</sup>; and therefore he would have each of these causes distinctly regarded in the cure of fevers, though only one disease arises from them mixed together, namely, a semi-tertian fever. Even it does not seem improbable, that sometimes an acute continual fever may be mixed with an intermitting tertian or quotidian, so as to produce another sort of semi-tertian fever, and that of the worst kind; since while the continual fever goes on in a direct course, there is every or every other day a new fit of the intermitting fever joined with it; whence all the disorders are increased. Galen<sup>n</sup> seems to have been acquainted with this complication of an intermittent with a continual fever, where he treats of compound and mixed fevers: for thus he expresses himself; *Febres quidem complicantur maxime cum aliis ejusdem generis, vel unius speciei cum aliis ejusdem speciei; est vero, quod & differentes (complicentur.) Nam quotidianæ tertianis, & his quartanæ; & ejusdem speciei inter se plerumque complicantur. Sic ut quandoque tres quartanæ periodos (id est quartanam triplicatam) idem homo habeat. Sed hos quidem cognoscere, non est omnino difficile. Quandoque vero aliqua ex intermittentium genere cum continua complicatur, difficillimam & vix explorabilem faciens mixtionem.* ‘ Fevers  
‘ are

<sup>m</sup> Ibidem, cap. 3, 4. pag. 129, 130.

<sup>n</sup> De Crisibus, Lib. II. cap. 7. Charter. Tom. VIII. pag. 416.



are indeed more especially complicated with others of the same kind, but sometimes they are compounded with others of a different kind. For generally quotidians are joined with tertians, and those again with quartans; those of the same kind being generally complicated together; so that the same patient shall sometimes have three fits of a quartan, that is to say, a triplicate quartan. It is not at all difficult to discover these; but sometimes a fever of the intermitting kind is complicated with one that is continual, so as to make a very difficult and hardly distinguishable mixture.' I believe I have sometimes observed such an ardent fever, though rarely, in which there has been a manifest exacerbation every third day, while in the mean time the continual fever went on, constantly increasing during the intermediate day. Perhaps such a complication may seem wonderful and scarce credible to many, that these fevers of such a different kind should continue united together without disturbing each other; but I saw a patient afflicted with a quartan who was seized with a violent pleurisy, which was attended with an acute inflammatory fever; but in the mean time during the whole course of this pleurisy, the quartan fever returned regularly at its usual times, nor was it disturbed at the coming on of this new disease, nor by the bleedings or other medicines used for the cure of the pleurisy.

The fever therefore seems to have been of three kinds, to which we gave the name of Semitertian; namely, the Tertian whose fits were so protracted that little or no intermission could be observed; and this was the Semitertian of Celsus: to which may be referred that which became a continual remitting fever from the repeated fits of the Tertian.

tian. Secondly, the Semitertian of Galen compounded of a quotidian continual and an intermitting tertian fever. Lastly, that which arose from the union of an acute continual fever with a tertian. But although each of these semitertians are dangerous, yet the second is worse than the former, and the third kind may be esteemed the worst of all.

Since therefore those constitutions, or climates and seasons, are very frequent which favour the production of intermitting fevers; and as autumnal intermittents appearing late, frequently occasion by the continuance or returns of their fits continual remitting fevers, see the comment to §. 727; therefore the reason is evident why such diseases are frequent, and at the same time it may be understood from what has been said, why such fevers are dangerous, and difficult to cure; as will still more evidently appear hereafter.

It may be asked therefore, whether every continual remitting fever does not deserve the name of ardent? It is certain that there are many such fevers, which though they are always difficult to cure, are yet not attended with the most severe symptoms; and therefore they may be again called simply continual remitting fevers. But the fevers of which a few die, but more escape, are called ardent by Hippocrates<sup>o</sup>; who observes that they prove more fatal in a wet or showery autumn. Galen<sup>p</sup> makes an ardent heat with an extinguishable thirst, to be the characteristic signs of an ardent fever. But concerning these and the other  
primary

<sup>o</sup> Epidem. 1. Charter. Tom. IX. pag. 64.

<sup>p</sup> Commentar. 3. in Lib. III. Epidem. Charter. Tom. IX. pag. 272.



primary symptoms which attend an ardent fever, we shall treat in the aphorism next following.

## S E C T. DCCXXXIX.

**T**HE chief symptoms of this fever are a heat almost burning to the touch, unequal in different parts, but the most ardent about the vital organs, (but often more remiss in the extremities, or even sometimes with a coldness there) the air itself breathed out being almost scorching; a dryness of the whole skin, nostrils, mouth and tongue; a thick, short, and laborious respiration; the tongue dry, yellow, black, parched up and rough; unextinguishable thirst sometimes going off suddenly; an aversion to food, with sickness and vomiting; a sense of anguish, restlessness and great weariness; a slight cough with a squeaking voice, a delirium, phrenzy, perpetual watchings, dozings, convulsions and exacerbations, or raging of the fever upon irregular days, or at unequal distances.

[A heat almost burning to the touch.] This fever takes its name from its great heat; but in what manner this heat appears to the touch of the physician in such patients, was said before in the comment to §. 731, namely, that it is sharp or uneasy to the sense, together with the dryness; and not moist or vaporous, as sometimes appears in the height of intermittents and other fevers of a milder

milder nature. Hence Aritæus<sup>q</sup> says, that the fiery heat of an ardent fever is very sharp or dry, and that the patients covet to touch every thing cold, as the walls, pavement, clothes, &c. to abate the troublesome heat. But it is very rarely that such a heat is equably diffused throughout the whole body, or not at all, except in the beginning of such fevers: for it is a good sign in diseases for the body to be equally hot and soft or moist, as we observed before at §. 698; but in ardent fevers all the very worst signs usually appear, when there is a most intense heat perceived about the vital viscera, and towards the extremities of the body the heat is more remiss, or even a coldness is observed instead of it. For since the febrile heat arises from the great motion of the humours from the heart, and the great resistance of the vessels against the heart, those resistances will be increased, when the most fluid parts of the humours are dissipated by heat, and the rest of the mass thickened or dried, see §. 669, then the blood cannot be propelled to the extremities of the body with its due force and quantity; and as the blood being now almost rendered impervious, is only moved by the vessels and viscera through the heart, it is evident a coldness of the extremities must be always of the worst import. Hence Hippocrates<sup>r</sup> ranks a burning heat in the internal parts, joined with a coldness of the extremities, among the signs of an ardent fever.

But since when the motion of the blood is impeded through many of the vessels of the body, it must pass through those which remain pervious with

<sup>q</sup> De caus. & sign. morb. acut. Lib. II. cap. 4. pag. 16.

<sup>r</sup> De Affectionibus, cap. 3. Charter. Tom. VII. pag. 622. De morbis, Lib. I. cap. 12. ibid. pag. 548.



with so much a greater velocity; and since as long as life continues, the blood must be drove through the lungs from the right to the left ventricle of the heart with a very rapid motion, being rendered more dense or thick from a dissipation of its more fluid parts, it will suffer a greater attrition in the pulmonary arteries, as it passes through their narrow extremities, whence an intense heat will be produced in the lungs. But as the air very soon grows hot upon being received into the heated lungs by inspiration, when it is expired again it will seem to be extremely hot; which may be best perceived by applying the back of the hand against the air as it is blown through the nostrils and mouth in expiration, when it will be offensive by its troublesome heat as if it was discharged from a hot furnace. In this sense the expired air is said to be burnt: and even Aritæus does not scruple to say, that those afflicted with an ardent fever breathe out fire.

A dryness of the whole skin, nostrils, mouth and tongue.] We before enumerated dryness among the effects of a febrile heat §. 689: since therefore there is a great heat in an ardent fever, it is evident that the parts of the body which ought naturally to appear moist, must become dry. But this dryness of the parts arises from a dissipation of the most thin and watery juices of the blood by the febrile heat; and partly because the rest of the blood, becoming impervious and hesitating in the larger vessels, distends them so as to compress the adjacent smaller vessels: and therefore in such patients the skin appears rough and dry, because the subcutaneous vessels distended

VOL. VII.

G

with

\* De Curatione morbor. acutor. Lib. II. cap. 3. p. 100.

with impervious blood, compress the very subtle exhaling vessels; while at the same time there is a deficiency of the thin serous parts of the blood; the same is also true in the eyes, nose, mouth, and tongue. Hence Hippocrates says, that they perish with driness who die of an ardent fever, as we observed before in the comment to §. 100.

A thick short and laborious respiration.] There are three times to be considered in respiration, that of inspiration, expiration, and the intermediate space betwixt inspiration and expiration; which last is by Galen<sup>t</sup> called the time of rest, where he endeavours to explain what kind of respiration may be properly termed thick or dense. For as olive-trees or vines are said to be planted thick when they are at a small distance from each other, and thin if there is a large space left betwixt them; therefore in this sense he would have us to understand a thick respiration. *Quum enim ipsa respiratio ex contrariis motibus per quietes distinctis composita sit, densam ipsam reddet brevitās quietum, raram vero longitudo.* ‘ For as the respiration  
‘ itself is compounded of contrary motions, distinguished from each other by stops of rest, a  
‘ shortness of those stops of rest will render the  
‘ respiration thick, as the length of them will  
‘ render it rare.’ The thickness therefore, or rareness of the respiration respects the intermediate space of time; but the quickness and slowness belong properly to inspiration and expiration. *Quemadmodum enim motui propria sunt celeritas & tarditas, ita & quantitati quietum raritas & densitas.* ‘ For as swiftness and slowness are terms properly  
‘ relative to motion, so is thickness or rareness  
‘ with

<sup>t</sup> De Respirat. diffic. Lib. I. cap. 2. Charter. Tom. VII. pag. 22.



with respect to quantity at rest <sup>u</sup>. But a large or small respiration denotes a different dilatation of the respirative organs. The respiration therefore which is thick and short, denotes a quickness of the inspiration and expiration, and that there is but a very short space intercepted betwixt those contrary motions. But a laborious respiration denotes difficulty and trouble in the performance of those motions; concerning which, see what has been said at §. 734. But since there is so great a burning heat about the vital organs, and the blood is moved with great rapidity through the lungs, being in a manner roasted by the intense heat, it will meet with great difficulty in passing through the narrow extremities of the pulmonary artery; whence the reason is evident, why these unhappy patients breathe so quick and with so much labour; namely, that they may receive an agreeable coolness from the inspired air, and forward the course of the blood through the lungs.

The tongue dry, yellow, black, parched up and rough.] In a healthy person the tongue and all the internal parts of the mouth are continually moist; but when the body is tortured with the intense heat of an ardent fever, all these parts become dry; hence, Hippocrates <sup>w</sup> in several places ranks a dryness and roughness of the tongue among those appearances, which are observed in an ardent fever. For the extremities of the smallest exhaling vessels placed in the surface of the tongue, being deprived of their juices become dry and dead; or being stuffed up with impervious juices,

G. 2

and

<sup>u</sup> Ibidem.      <sup>w</sup> Hippocr. de Morbis, Lib. I. cap. 12. Charter. Tom. VII. pag. 548. & Lib. II. de Morbis, cap. 25. ibid. pag. 576. & Lib. III. de Morbis, cap. 6. ibid. pag. 584.

and thrust forward by the impulse of the vital blood urging behind, they will stick out beyond the surface of the tongue, and form that foulness as it is called, which appears first yellow, then brown, and afterwards often turns to a perfect black, the extremities of these small vessels deprived of their juices being rendered gangrenous. If now at the same time there is a great dryness, so as to render the tongue rough and unequal, it is always one of the worst presages, because we thence know that the surface of the œsophagus, stomach and intestines, are affected in the same manner; and therefore that the ingested liquors will meet with a very difficult passage into the body, as the mouths of the absorbing veins being corrugated and dried up refuse them admittance; while in the mean time the intense heat and agitation of the blood call aloud for a great quantity of diluent fluids. Aritæus<sup>x</sup> likewise seems to have remarked, that the tongue points out the internal state of the body, more especially if we read the obscure text agreeable to the ingenious improvement of the celebrated Petite<sup>y</sup>: for then Aritæus after having said that the tongue is rough, dry and black in an ardent fever, adds, *hæc enim (lingua) omnia interna significat*; ‘for this part, the tongue, represents all that are internal.’ Hence it is evident, that the foulness appearing on the surface of the tongue, does not arise from smoaky vapours ascending upward from the stomach, and adhering to the tongue, as was formerly taught in the physical schools. Even Helmont<sup>z</sup> judiciously opposes this error, when he says, *Non est ergo*

<sup>x</sup> De curatione Morbor. acut. Lib. II. cap. 3. pag. 100. C.

<sup>y</sup> Ibidem in natis uti & pag. 255.

<sup>z</sup> In Capitulo *Latex humor neglectus*, N<sup>o</sup> 28. pag. 335.



*ergo linguae ariditas crustataque ejus sordes, in febribus effectus, sive indicium exhalationis e stomacho etiam potum non coquente) sursum delatae: sed est effectus laticis deturpati, vel egestate penuriosi;*

The driness and foul crust of the tongue in fevers is not therefore the effect or sign of an exhalation from the stomach, (even not digesting drink) discharged upward; but it is from a deficiency of the discoloured lymph or moisture, or from a scantiness of its discharge.\* But we begin to conceive the first hopes of recovery in these malignant diseases, when something of a moisture appears upon the tongue; for then the crust formed by the dead extremities of the vessels becomes soft, turgid, and raised up, separating from the living parts by the impulse of the vital humours, perfectly in the same manner as in the separation or casting off of other gangrenous parts. It then often happens that the tongue which is before dry and rough, but not yet black, throws up a crust, which beginning to separate from the adjacent parts of the tongue, then puts on a black colour; but then under this crust, and in several parts betwixt the fissures, there manifestly appears a moisture as a happy sign; and then such a blackness of the tongue likewise accompanied with a moisture, is not at all a bad sign, but bids us hope for the best; in the same manner as when the parts corrupted by a gangrene turn the most black when they begin to be separated and thrown off from the living parts. From what has been said, it is evident why Hippocrates<sup>a</sup> treating of an ardent fever, says, *Color linguae primo quidem tempore, qualis esse consuevit, verum valde sicca est; procedente vero tempore induratur, & exasperatur, & crassescit,*

G 3

<sup>a</sup> De Morbis, Lib. III. cap. 6. Charter. Tom. VII. pag. 584.

*crassescit, & nigrescit. Si sane per initia hæc contingant, celeriores judicationes fiunt, si posterius, tardiores;* ‘ The colour of the tongue is during the  
‘ first time of the fever, like that which we usually observe, but is very dry; but in the time of  
‘ the increase it grows hard and rough, thick and  
‘ black. If now these appearances happen towards  
‘ the beginning of the disease, they denote a more  
‘ speedy determination of it, but if they happen  
‘ later, they denote a more slow termination.’  
Thus he describes the successive changes of the tongue, mentioning that it grows thick and black in the last place, and from thence takes his sign of the future event of the disease; and adds, that the tongue is not dry as it was in the first stage of the disease; whence it seems very probable, that the tongue then appears to be moist when it grows thick and black: for when those dry crusts begin to grow moist and rise up, the tongue not only appears thicker, but the patient also frequently complains that the tongue then feels as if it was increased in its bulk, and covered over with a sort of wool. For so long as that great dryness continues in the tongue, there can be no hopes of a crisis. This opinion is further confirmed by what we read in his Coan prognostics<sup>b</sup>; where we find him repeating almost the same with what we have before cited, and then adds as follows: *Progressu autem temporis lingua exasperatur, & livescit, & rumpitur: lethale. Si vero valde nigrescat, in decimo quarto die crisin futuram significat. Periculosissima est nigra & cum virore pallida;* ‘ But in  
‘ process of time the tongue becomes rough,  
‘ livid and fissured, which is a fatal sign. But if  
‘ the tongue looks very black towards the four-  
‘ teenth

<sup>b</sup> N<sup>o</sup> 230. Charter. Tom. VIII. pag. 865.



teenth day, it denotes a crisis about to happen. The most dangerous colour of the tongue is a black mixed with a pale green.\* Thus he observes that a very black tongue denotes a crisis, namely, when it is joined with moisture, as is evident from what we said before; but that a black tongue with dryness is the most dangerous. For unless we thus explain this prognostic, the terms directly contradict each other.

Unextinguishable thirst sometimes going off suddenly.] Where we treated of thirst as a febrile symptom §. 636, it appeared that drought denoted an imperviousness of the humours, or else that it was occasioned from an acrimony, either saline, oily, bilious or alkaline, or from putrid excrements in the first passages. But in an ardent fever great thirst attends, as we demonstrated before; and the thinnest parts of the blood being dissipated, the rest become impervious. Moreover by such an intense heat (see §. 689,) the saline and oily parts of the blood are rendered more acrid and inclined to putrefaction: the bile is first corrupted, and then is lodged about the stomach and adjacent parts, so as to form putrid excrements in the first passages. It is therefore evident that all the causes of thirst concur in an ardent fever; and hence also a burning heat with intolerable thirst, are reckoned by Galen as the pathognomic signs of an ardent fever, as we said before under the preceding aphorism. An ardent fever is therefore seldom observed without an intense thirst, unless there are signs at the same time that the brain is injured. Therefore when Hippocrates<sup>c</sup> in describing ardent fevers, says, that they were without intense thirst; he adds, likewise,

G 4

\* Epidemic. Lib. III. Charter Tom. IX. pag. 271, &c.

likewise, that the patients were comatous from the beginning; and that in the exacerbations the patient was forgetful, regardless or speechless; all which denote that the actions of the brain were disturbed, and consequently oppressed, so that although the causes of thirst were present, yet the mind could not perceive the thirst. Hippocrates<sup>d</sup> in another place says, *Quos in febris ardentibus plerumque leviter prurit tussis arida, non admodum siticulosi sint*; 'That those who are troubled with slight dry coughs in ardent fevers, are generally not much troubled with thirst:' but Galen observes in his commentaries to this aphorism, that the irritation of such a slight cough derives a greater quantity of moisture to the parts, and therefore that this is the cause why such patients are less thirsty; which seems very probable. But when the functions of the brain are disturbed by the violence of the fever, or distension of the vessels of the encephalon with impervious blood, the thirst is often suddenly removed, though all the causes of it continue in the body, and are even frequently increased. But such an abolition of the thirst, is justly esteemed one of the worst signs (as is evident from what was said before in the comment to §. 637.)

An aversion to food, with sickness and vomiting.] It is very common for the worst fevers, among which those of the ardent kind hold almost the first place, to injure almost all the functions of the body at one and the same time: no wonder therefore if those are depraved whose office it is to receive, retain, and digest the food, &c. But more especially these symptoms attend ardent fevers, because all the humours so much incline to putrefaction

<sup>d</sup> Aphor. 54. Sect. IV. Charter. Tom. IX. pag. 169.



putrefaction by the increased heat ; and above all, the bile is more especially thus inclined to degenerate, as appears from the fœtid smell of the mouth in these diseases, the disagreeable taste, unquenchable thirst, foulness of the tongue, and most fœtid stools, &c. And that this is the most frequent cause of sickness and vomiting in fevers, appears from what has been said before at §. 642, N° 1. Add to this, that when such an intense burning heat is perceived in this disease about the præcordia, the liver, stomach, or other adjacent viscera, are often inflamed ; and from thence again the same symptoms may arise, as we demonstrated before in treating of a nausea and vomiting. But it is remarkable that such patients have an aversion chiefly to fish, flesh, eggs, and the like, which spontaneously incline to putrefaction, and have a desire almost for nothing but water, and acid or acescent liquors. But sometimes it happens that they reject every thing that is given them, which is a very bad sign : and which Hippocrates<sup>e</sup> observed to have happened in those continual fevers, which he says never intermit, but every other day resemble an intermitting tertian, by the return of exacerbations or fits ; which therefore may be justly called ardent, since he tells us they are accompanied with the same most violent, and constantly attending symptoms ; but he remarks that these fevers, *maximum & perpetuum signum comitabatur, quod cibos omnes plerique aversarentur, iisque maxime, quibus cætera quoque perniciofa existerent* ; <sup>e</sup> are attended with a very considerable and constant sign, namely, that the patient has for the most part an aversion to all sorts of food,

<sup>e</sup> more

<sup>e</sup> Epidem. 1. Charter. Tom. IX. pag. 46, 50.

‘ more especially to those which are more mischievous and hurtful than the rest.’

Anguish, restlessness.] A thick, short, and laborious respiration, which we observed before to be an attendant on an ardent fever, denotes that the blood has a difficult passage through the smallest extremities of the pulmonary artery, and therefore it will be also joined with anguish, (as is evident from what was said, at §. 631.) But also the same disorder sometimes arises about the liver in an ardent fever, when the blood being rendered too thick by the febrile heart, cannot pass through the smallest extremities of the vena portarum; and therefore this will be another cause of anguish. Moreover, it is proved under the title of anguish in fevers, that putrid bile collected about the præcordia, has sometimes produced the very worst kind of anguish; and as this frequently takes place in an ardent fever, the reason is evident why anguish and restless tossings of the body almost constantly attend in this disease, as Hippocrates remarks in several parts of his books of epidemics: But that this is a bad sign in these fevers, he observes, when he says, *Tertianariæ febres cum anxietate, malignæ*; ‘ Tertianary fevers with anguish are malignant<sup>f</sup>.’

Great weariness.] When people feel a foreness all over them after too much exercise or motion of body, as if they were bruised, more especially if they have not been used to exercise, and if at the same time they are faint from the over fatigue, then a great weariness or lassitude is said to attend. But when there is such a troublesome sense in fevers, it denotes that the humours are agitated with a most rapid motion, or that the blood being rendered

<sup>f</sup> Coac. Prænot. N<sup>o</sup> 33. Charter. Tom. VIII. pag. 854.



dered impervious by an inflammatory thickness, cannot pass but with difficulty through the ultimate extremities of the arteries, (as we said before in the comment to §. 734.) From what has been already said, it is evident that these causes take place in an ardent fever; whence Hippocrates<sup>g</sup> ranks great lassitude or weariness among the symptoms of an ardent fever, and which he calls osteocopic, when the body is shook so that the pain extends even to the bones. When therefore such a lassitude or sense of weariness attends from the beginning of an ardent fever, and holds for a long time, we know that there is an inflammatory thickness of the blood, which continuing and daily increasing by the disease, will afterwards be very difficult to dissolve. But if the patient escapes from these disorders, we are to expect an alteration of the tenacity, or thickness of the humours into matter, and a translation of it into various parts of the body. For this reason perhaps Hippocrates<sup>h</sup> says, *Lassitudine per febres laborantibus, ad articulos, ac maxime circa maxillas, abscessus oriuntur*; ‘That those afflicted with lassitudes in fevers, have abscesses formed at the joints, and more especially about or behind the jaws.’ But it will appear hereafter at §. 741, that parotides are frequently formed in ardent fevers.

Slight cough.] That this accompanies an ardent fever, was lately observed to us in treating of the indelible thirst in this disease. But such a slight cough may proceed from a turgescence of the blood-vessels of the lungs, distended too much with impervious blood, so as to compress the air-vessels of the lungs, that their surfaces rub against each

<sup>g</sup> De victu in morbis acutis, Charter. Tom. IX. pag. 118.

<sup>h</sup> Aphor. 31. Sect. IV. Charter. Tom. IX. pag. 152.

each other; for then such a dry and irritating cough will attend, as we observed before in a peripneumony. But Hippocrates <sup>i</sup> has observed, that an ardent fever loves to turn into a peripneumony, and that few then escape; and therefore a slight cough arising from this cause affords a very bad sign. Moreover Sydenham <sup>k</sup> has observed, that the patient is sometimes fatigued with a troublesome cough in continual fevers throughout the whole course of the disease; and he believed that this happened when thin fluxile humours were expressed through the exhaling vessels, by the tumultuous motion of the blood from the fever, into the air-vessels of the lungs, or by a dilatation or distraction of those exhaling vessels, whence the very sensible membranes of the trachea became continually irritated: but he confesses in the mean time that he did not apprehend much danger from this symptom. Of this kind seem to have been those coughs which Hippocrates <sup>l</sup> tells us he has observed in ardent fevers, when he says, *Tusses quidem febrium erant comites, scribere autem non possum lesionem, vel utilitatem, quæ a tusse fiebat*; ‘These fevers were indeed attended with coughs, but I cannot say that any mischief or utility proceeded from the cough.’

A squeaking voice.] This is the sharp or shrill voice which Hippocrates <sup>m</sup> condemns; and Hollerius makes this so fatal a sign (as we observed in the comment to §. 609. N<sup>o</sup> 2.) that he assures us he never knew one recover after speaking with such a voice. But this happens when the fauces being

<sup>i</sup> De Affectionibus, cap. 3. Charter. Tom. VII. pag. 622.

<sup>k</sup> Sect. I. cap. 4. pag. 83.

<sup>l</sup> Epidem. I. Charter. Tom. IX. pag. 50.

<sup>m</sup> In Prorrhet. Lib. I. Charter. Tom. VIII. pag. 732.



being greatly dried up, the voice does not pass through soft and moist membranes as in health, but reverberates, as if it was drove through a dry, smooth, metalline tube. It is not easy to describe in words what this kind of voice is, but a person who has once heard it in a patient, will easily distinguish it again.

[Delirium, phrenzy, perpetual watchings, dozings, convulsions.] For all these denote that the brain is injured; and it is evident from what was said in the history of these febrile symptoms, and what will be said hereafter when we come to treat of a phrenzy, that such causes exist in an ardent fever; or if they do not attend in the beginning of the disease, they may all of them be produced by the fever itself and its intense heat. Hence also Hippocrates in several places of his epidemics, and in other parts of his works, mentions these as symptoms of an ardent fever.

[Exacerbations of the fever on unequal days.] It was said before at §. 738. from Galen, that an exquisite ardent fever retains all the signs of an exquisite tertian, and that it differs only in not invading with a rigour or shivering, and in not coming to perfect intermissions; and that this was the reason why he ranks an ardent fever not among the synochi or continent, but among the continual remitting fevers. But in the fevers which he calls tertianary or semi-tertianary, which he likewise refers to an ardent fever, if they are attended with the bad symptoms before enumerated, the exacerbations happen always on unequal days. Hence the ardent fever seems also to have something of the nature of an intermittent; and from hence frequently when such fevers are extended to a great length, they afterwards change to intermittents; and even sometimes, as we said before, when intermitting

intermitting fevers spread epidemically, and appear early in the summer-months, they often pass under this appearance. But it will appear at §. 741, that sometimes also in ardent fevers the exacerbations happen on equal days, and with a very bad sign; as the patient's strength is more weakened by the frequent and repeated new accessions: and yet then for the most part the exacerbations attend on unequal days; as, for example, when an intermitting quotidian or double tertian is joined with a continual fever, or when the fits of such a fever being prolonged, it never comes to an entire remission.

## S E C T. DCCXL.

**T**HE cause of this fever is generally too much labour, long journies, the heat of the sun, thirst continued for a long time, the use of heating fermented liquors, sharp spices, excessive venery, immoderate fatigue, more especially in the summer-time, &c.

As an ardent fever acknowledges for its proximate cause, the blood deprived of its more fluid and mild parts (as we shall observe at §. 742.) an inflammation throughout the body, with great strength of the vital powers ensues: it is therefore evident, that among the causes may be enumerated every thing which inspissates the blood by dissipating its thinnest parts, renders the humours more acrid, or increases their motion by a stimulus. For by such things an ardent fever may be raised, even in the most healthy person; more especially if the epidemical constitution or season of the year favours the production of these fevers. Hence it is evident



dent why too much labour, more especially to people not accustomed to it, and the making of long journies, produce ardent fevers, especially in the violent heat of the sun; as also from thirst a long time supported; and hence Hippocrates <sup>a</sup> says, that an ardent fever generally arises after long journies and continued thirst; and reckons ardent fevers among the diseases of the summer-time <sup>o</sup>. Also the like causes with those mentioned in the text are assigned to an ardent fever by Galen <sup>p</sup>. When generals are obliged to march and move their camps in the summer-time, and more especially if there is scarcity of water, sometimes the whole army is afflicted with this kind of fever; whence an ardent fever is justly ranked among the diseases of the camp. But, among the humours inhabiting the body, the ancient physicians accuse the bile more especially as the cause of ardent fevers. Hippocrates <sup>q</sup> says, that an ardent fever arises from a commotion of the bile: and in another place <sup>r</sup> he remarks, that bilious people are more readily invaded by this disease. Aritæus <sup>s</sup> tells us, that the urine is extremely bilious in an ardent fever. But Galen <sup>t</sup> testifies, that not an accumulation of the bile in any part of the body, but only about the stomach, kindles an ardent fever, especially its orifice and lower parts of the liver; namely, where the biliary ducts, pylorus, and intestinum duodenum are placed. But we know

<sup>a</sup> De victu in morbis acutis, Charter. Tom. XI. pag. 116, &c.

<sup>o</sup> Aphor. 21. Sect. III. Charter. Tom. IX. pag. 116.

<sup>p</sup> Comment. II. in Lib. I. Epidem. Charter. Tom. IX. pag. 44.

<sup>q</sup> De Affectionibus, cap. 3. Charter. Tom. VIII. pag. 622.

<sup>r</sup> De Morbis, Lib. I. cap. 12. Charter. Tom. VII. pag. 547.

<sup>s</sup> De causis & signis morbor. acutor. Lib. II. cap. 4. p. 16.

<sup>t</sup> Commentario 1. in Lib. I. Epidem. Charter. Tom. IX. pag. 18.

know that the bile becomes more acrid and semi-putrid by too much labour, with the summer's heat and the other causes mentioned in the text; and therefore the reason is evident, why an ardent fever may arise from these causes. Thus it is observed that after the most scorching heats of the summer in autumn, semi-tertianary fevers have raged with the most violence, and that all such patients have discharged a great quantity of corrupt bile both upwards and downwards; whether the evacuation was excited either by nature or art. For the rest we have treated of the causes mentioned in this aphorism in the comment to §. 586, where we considered all those as the particular causes of fevers.

### S E C T. DCCXLI.

**T**HE course of an ardent fever is as follows: it very often proves fatal on the third or fourth day, and seldom passes over the seventh day; if it is a perfect *causus* or ardent fever, it often goes off with an hæmorrhage, which, if small on the third or fourth day, is a fatal sign; this may be foretold from a pain in the neck, a heaviness in the temples, a darkness or mist before the sight, a labouring motion of the præcordia without a sense of pain, involuntary tears without any other fatal sign, a redness in the face and itching of the nose; and this hæmorrhage is the best when it happens on a critical day: sometimes the fever goes off likewise on a critical day by vomiting, a diarrhœa, sweat, urine, or a thick spitting; a return or increase of the fever on  
equal



equal days is very bad if it happens before the sixth; in this case a black urine, thin, or small in quantity is fatal, a spitting of blood is fatal, as also is bloody urine; the deglutition or swallowing being injured is bad, a coldness of the extremities is very bad, as also redness and sweating of the face; a swelling under the ears not coming to suppuration is fatal; as also is too great a flux from the bowels; when the fever with a trembling turns to a delirium, or to a peripneumony with a delirium, it then ends in death; this kind of fever is the worst, which arises after severe gripes of the bowels: but it sometimes goes off critically with a rigour or cold shivering.

Since every fever terminates either in death, health, or another disease, (see §. 591.) it will be therefore of use for us to see what the observations of physicians teach concerning the various exit of this dangerous fever, and what changes happen, when it tends either to a good or bad end. For thence may be had the best prognosis, and at the same time may be derived the curative indications, pointing out by what method and by what remedies the fatal exit of this disease may be prevented; and, on the contrary, those endeavours of nature promoted which incline to health.

It very often proves fatal on the third or fourth day, and seldom passes over the seventh day, if it is a perfect *causus* or ardent fever.] Since so many and such malignant symptoms attend an ardent fever, as we have already seen at §. 739, it will not seem wonderful to any one, if nature

being overcome should in a little time sink under the disease, and the patient expire. *Malignæ enim febres, & quæ cum gravissimis fiunt signis, quarto die vel prius interficiunt.* ‘ For malignant fevers, ‘ and such as are attended with the most violent ‘ symptoms, kill on the fourth day or sooner,’ says Hippocrates <sup>u</sup>. But the first term is fixed by Hippocrates in the most violent disease to this space from the first attack ; but the second class he observes may be extended to the seventh day ; and within this space is an exquisite ardent fever limited by Galen. For as we observed before at §. 738, he compares an exquisite tertian with an ardent fever, from which he says the latter differs only in its not invading with a rigour or shivering, nor in coming to a perfect remission. Hence as an exquisite tertian terminates in seven fits or periods, so an exquisite ardent fever, as he tells us, comes to an end of necessity within the first week <sup>w</sup>. But the swift course of the most acute disease and its fatal event, we learn from the number and violence of the symptoms. *Quum enim morbus peracutus est, statim extremos habet labores ;* ‘ For when ‘ the disease is per-acute, the patient has immedi- ‘ ately extreme anguish or sufferings<sup>x</sup>.’ And hence Hippocrates has distinguished the diseases which swiftly tend to health or destruction, when he says<sup>y</sup>, *Qui vero brevissimo tempore judicabuntur, facilius prænoscentur, maximè namque ab initio inter se dissident. Qui enim superfuturi sunt, facile spirant dolore vacant, noctu dormiunt, & alia securissima habent signa. Qui vero pereunt, difficile spirant delirant, vigilant, cæteraque habent signa pessima.* ‘ That

<sup>u</sup> In Prognost. Charter. Tom VIII. pag. 663, 664.

<sup>w</sup> Galen de Crisib. Lib. II. cap. 6. Charter. Tom. VIII. pag. 415. <sup>x</sup> Aphor. 7. Sect. I. Charter. Tom. IX. pag. 12.

<sup>y</sup> In Prognostic. Charter. Tom. VIII. pag. 667.



‘ That those diseases which come to a crisis in the shortest time are more easily foreknown, as they differ widely from each other, even at the beginning. For they who are to survive, breathe easily or without pain, get sleep in the night, and have other signs of the greatest security. But those who are to perish breathe difficultly, are delirious, watchful, and attended with other signs of the worst import.’ When therefore all the symptoms are very violent, and continually increase from the beginning of the fever, we foresee that death will follow in a short time. But when an exquisite ardent fever, or one that is continual, or continual but daily remitting, is joined with a tertian, which excites new exacerbations or fits of increase every third day, while in the beginning of such a disease the preceding symptoms are more violent, it is evident, that the patient’s strength being broke by the swiftness and numerous symptoms of the disease, there is danger lest the patient should be extinguished in the coming on of a new fit. Even Galen <sup>z</sup> observes, that frequently the very hour of death may be predicted by the physician, if he does but carefully attend to the time of the exacerbations in these diseases; and if he also distinguishes whether the patient finds himself worse in the beginning, height, or declension of the fits. For sometimes in these worst diseases, as he well observes, the extremities grow so cold in the beginning of the exacerbations that they can hardly be reduced to their natural warmth; the pulse is small or almost imperceptible, &c. others in the height of the disease have a delirium, coma, or intolerable anguish and burning heat, &c.

H 2

but

<sup>z</sup>. De diebus decret. Lib. I. cap. 10. Charter. Tom. VIII. pag. 447.

but some in the declension of the disease, have fainting fits, cold sweats, and a small, unequal, and obscure pulse, &c. Now according as these most malignant symptoms are observed in this or that stage of the exacerbations, so it will be probable that the patient will expire about the same time of the exacerbation or fit next following.

But the fourth day is often fatal, more especially in the most violent ardent fever, whose fits of increase happen on equal days; for then the exacerbation does not fall out upon the third, but on the fourth day. Hence Hippocrates<sup>a</sup> observes, *Quæ diebus paribus exacerbantur, ea paribus judicantur; quorum vero accessiones diebus imparibus fiunt, diebus imparibus judicantur. Circuituum autem diebus paribus judicantium primus est decretorius quartus, sextus, octavus, &c. circuituum vero imparibus diebus judicantium primus est tertius, quintus, septimus, &c.*

‘ That those fevers which are exasperated on equal days, come to a crisis upon equal days; but those whose accessions or fits happen on unequal days, such terminate on uneven days. But the course or circuit of those terminating upon even days is chiefly upon one that is critical, as the fourth, sixth, eighth, &c. but the circuit of those coming to a crisis upon unequal days is more especially the third, fifth, seventh, &c.’ Hence he remarks<sup>b</sup>, that in the worst kind of the ardent fever, the symptoms were most violent on the fourth day, attended with sweats, in some measure cold, without any warmth in the extremities, which continued livid and cold without any thirst: it is therefore evident, that the patient then hesitates as it were in the agonies of death; and if they yet survive

<sup>a</sup> Hippocrat. Epidem. 1. Charter. Tom. IX. pag. 95.

<sup>b</sup> Ibidem, pag. 70.



vive that fit, he observes, they perish the next, namely, on the sixth day. Another difference with respect to the fourth day arises from hence, that frequently the fits of increase which happen on uneven days, appear before their usual time; hence when the disease begins on the first day with a fit of increase, the patient seems to be a little relieved on the second day; but then on the beginning of the third day, or towards the latter end of the second, a new fit comes on; and then the third fit appearing still sooner, falls out upon the fourth day, and frequently the patient expires in the beginning of such an exacerbation. Whence in another place Hippocrates<sup>c</sup> says of continual fevers increasing on the third day; *si quartus dies tertio quidquam in his ipsis simile habuerit, in periculo versatur æger*; 'that if on the fourth day the patient has a fit like that which appeared on the third, he is in danger.'

When therefore there is a true and exquisite ardent fever attended with intolerable burning heat, inextinguishable thirst, and other symptoms of the worst kind, it seldom exceeds the seventh day: but when all the symptoms are milder, the fever being yet of the same nature, namely, continual remitting, it is often called ardent notwithstanding; and though such a fever is dangerous, yet it does not so soon destroy the body, but runs out to a greater length before it terminates either in death, another disease, or in health. Thus Hippocrates<sup>d</sup> describes an ardent fever, when he says, that it terminates or comes to a crisis at the soonest on the ninth or tenth day, but at longest on the fourteenth. But a fever of a much milder nature,

H 3

which

<sup>c</sup> De victu morbor. acut. Charter. Tom. XI. pag. 149.

<sup>d</sup> De Affectionibus, cap. 3. Charter. Tom. VII. pag. 622.

which yet is called ardent, he says in another place<sup>e</sup>, terminates within the space of seventeen days. In his Coan Prognostics<sup>f</sup> he says; *Febres ardentes quatuordecim dies dijudicant, aut allevantes aut perimentes*. 'That ardent fevers come to an end in fourteen days, either by relieving or extinguishing the patient.' But in the text he does not call this fever simply a *causus* or exquisite ardent fever, but *causodes*; which denotes milder fevers of the same kind; which last term occurs in several places, where such milder fevers are described in his works. But in other places, Hippocrates has used these words promiscuously. Thus, where he relates that extraordinary case of a patient, where the disease terminated on the hundredth day, he says; 'that the patient was taken with an acute fever of the ardent kind;' but, towards the end of the history of the disease, he says; 'the *causus* or ardent fever perfectly terminated on the hundredth day:' from whence it plainly appears, that the same disease, though of so long continuance, is by Hippocrates called *causus* and *causodes*<sup>g</sup>. But in another patient<sup>h</sup> who perished on the hundred and twentieth day of such a fever, though it appeared from the history of the disease, that throughout its long course the patient was frequently without the fever for some days, and afterwards had returns of it again; yet in the end of the history where the malignant symptoms are enumerated, attending throughout the whole course of the disease, he adds; 'that the patient laboured under a continual ardent fever.' But he seems in such cases to retain the name of the disease which he

had

<sup>e</sup> Epidem. 1. Charter. Tom. IX. pag. 43.

<sup>f</sup> No 138. Charter. Tom. VIII. pag. 859.

<sup>g</sup> Epidem. 3 ægrot. 9 Charter. Tom. IX. pag. 303, 304.

<sup>h</sup> Ibidem, ægrot. 1. pag. 291.



had given in the beginning, even though the fever afterwards degenerates. For it is to be more especially remarked, that frequently all the solid and fluid parts are so changed during the first days of such fevers, that they greatly deviate from the laws of health; so that though the violence of the disease should afterwards remit, yet health does not always follow, but frequently another disease, and that very difficult to remove: and hence patients frequently are lost after escaping the first and greatest violence of the disease. But strictly speaking, they do not then die of an ardent fever but of another disease, which is the effect and consequence of the fever.

It often goes off with an hæmorrhage.] Galen remarks, as we observed before upon another occasion in the comment to § 218, that where Hippocrates uses the term hæmorrhage only, without expressing the particular part of the body from whence it happens, that then he understands a flux of blood from the nose; and he says, it is proper to exquisite ardent fevers to terminate by bleeding at the nose<sup>i</sup>. Therefore in this sense the general term hæmorrhage is to be understood in the text. It indeed seems very probable, that other hæmorrhages may be likewise of service; as when blood is discharged by the piles, or an eruption of the menses: even Hippocrates<sup>k</sup> particularly remarks, that the menses flowed abundantly in many women afflicted with an ardent fever; and he observes, that none of them perished who had such a copious flux of blood, either by the menses or nose. Even he seems to have taken notice, that the epidemical fever which he there describes, had so strong a  
H 4
tendency

<sup>i</sup> Galenus Comment. I. in Epidem. Lib. I. Charter. Tom. IX. pag. 18.

<sup>k</sup> Epidem. Lib. I. ibid. pag. 67.

tendency to this discharge, that a great many virgins had then the first eruption of their menses while they lay ill of this fever; but all the pregnant women miscarried that he could observe afflicted with this disease. But in the mean time that hæmorrhage which comes from the nose is more frequent than the rest in ardent fevers, and more especially salutary<sup>l</sup>; and therefore Hippocrates placed his greatest hopes in this evacuation provided it was but sufficiently copious: but, on the contrary, in enumerating those accidents which happen to such who die of ardent fevers, he remarks, that there was no eruption of blood, but only a few drops distilled<sup>m</sup>, and that most of them perished who had not such a discharge of blood<sup>n</sup>. Thus in the patient<sup>o</sup> whose ardent fever terminated on the hundredth day, on the fortieth day there was a copious flux of blood from the nose, and afterwards the blood continued to flow in small quantities, and frequently even to the sixtieth day; and he remarks, that the deliria or ravings, deafness and fever were diminished, although this difficult disease would not be entirely subdued by that evacuation. But, on the contrary, in another patient<sup>p</sup> who perished on the hundred and twentieth day, there was none of this salutary hæmorrhage from the nose; but on the eighth day of the disease, only a small quantity distilled from the nostrils. From whence it appears, that in ardent fevers, which very swiftly run through their course, and in those rare cases where they degenerate into a lingering disease, a large eruption of blood from the nose is of great weight towards a cure.

Which

<sup>l</sup> Ibid. pag. 65.    <sup>m</sup> Ibid. p. 70.    <sup>n</sup> Ibid. pag. 66. & Epidem. 3. Ibid. pag. 275.    <sup>o</sup> Epidem. 3. ægrot. 9. Ibid. pag. 303, 304.    <sup>p</sup> Ibidem, ægrot. 1. pag. 291.



Which if small on the third or fourth day is fatal.] For a large hæmorrhage is required in this most dangerous disease, so that sometimes it has flowed to the quantity of several pounds with very good success; though from such a great loss of blood the patient frequently remains weak afterwards. But when only a few drops distil on the third or fourth day, it is often a fatal sign; for then we know that the violence of the fever is so great as to burst the arteries in the nose, or else to dilate their serous orifices so as to transmit the red blood, which in the mean time is become so thick or inspissated and inclined to concretion, that it immediately hardens upon the contact of the air, and stops up the passage which was procured for it. I have seen in such cases the drops of blood distilled from the nose, and received upon a handkerchief, to turn solid immediately. Hippocrates<sup>a</sup> lays it down as a general rule in practice, *Judicatoria non judicantia partim lethalia, partim difficilis judicii*; ‘that critical signs not terminating the disease are partly fatal, and partly denote difficulty of the crisis.’ Whence it is evident why so slight an hæmorrhage is so fatal a sign, since it is a fruitless attempt of nature to make a critical evacuation. Hence he pronounces *Hinc pusillas stillas (sanguinis) malas*; ‘small drippings of blood to be bad’; more especially if what distils is sincere<sup>b</sup>; by which perhaps he intends very thick blood, immediately concreting without any separation of its more liquid part. And in another place<sup>c</sup> after having said that all those recovered

<sup>a</sup> Epidem. 2. Charter. Tom. IX. pag. 120.

<sup>b</sup> Coac. Prænot. N<sup>o</sup> 59. Charter. Tom. VIII. pag. 855.

<sup>c</sup> Epidem. 1. ægiot. 1. Charter. Tom. IX. pag. 99.

<sup>d</sup> Ibid. pag. 65.

covered of the epidemic fever who had a copious hæmorrhage from the nose, he adds, *In Philisco, & Epimanonte, & Sileno (quorum historiam pluribus postea descripsit) quarto & quinto die paucum naribus stillavit, & perierunt*; ‘ In Philiscus, Epimanontes, and Silenus, (whose history he afterwards describes at large) there was a small quantity of blood distilled from the nose on the fourth and fifth day, and they perished.’ This he also confirms by many more instances in other patients. Thus in the wife of Dromedas <sup>u</sup> a small quantity of blood distilled from the nose on the fourth day, but on the sixth day she died convulsed. In another patient <sup>w</sup> a small quantity of sincere blood flowed from the left nostril on the second day, as it also did on the fourth day; and this patient recovered, but with great difficulty, and with two relapses, the disease terminating at length on the fortieth day. But it is to be observed, that although this small dripping of blood is always to be suspected, yet it is less dangerous if soon after, or on the following day, a large hæmorrhage ensues, as happened in Metones <sup>x</sup>, who on the fourth day had twice a small dripping of blood from the right nostril; but on the fifth day a copious flux of blood followed from the left nostril, which with a sweat terminated the disease: but even after the crisis he observes to us in the history of this patient, that blood frequently bursts forth from the nose.

But since, as we shall soon declare hereafter, that hæmorrhage from the nose is best which happens on a critical day, and as the fourth day is not

<sup>u</sup> Ibid. ægrot. 11. pag. 114.

<sup>w</sup> Epidem. 3. ægrot. 3. ibid. pag. 224, &c.

<sup>x</sup> Epidem. Lib. I. ægrot. 7. pag. 109.



not so much reckoned among those which are critical, or at least not among such, but rather among the indicating days, as we shall soon demonstrate more at large, the reason is evident why the ancient physicians suspected an hæmorrhage, however large, happening on the fourth day. For as we observed a little before, under the present aphorism, from Hippocrates, those fevers terminate on even days, which have their fits of increase on even days; and therefore if such a critical hæmorrhage should happen on the fourth day, it demonstrates that the accessions or fits will happen on even days; which yet is to be esteemed as one of the worst signs in these fevers, as we shall demonstrate hereafter under the present aphorism. For this reason Hippocrates<sup>y</sup> seems to have admonished us; *Quæ quarto die fiunt hæmorrhagiæ (narium) difficilem judicationem faciunt*; ‘That the hæmorrhages which happen on the fourth day from the nose, make the crisis difficult or doubtful.’ And in his Coan prognostics<sup>z</sup>; *In febre ardente fluxio (sanguinis) ex naribus quarto die mala est, si non aliud quid boni coinciderit; verum quinto die minus periculosa est*; ‘That a flux of blood from the nose on the fourth day of an ardent fever is bad, if it is not attended with other good signs; but if it happens on the fifth day it is less dangerous.’ But it must be observed, that he does not here speak of a slight dripping, but of a sufficient large flux. But there is an instance in his epidemics<sup>a</sup> of a patient, who on the fourth day had a considerable flux of blood from the left nostril, which perfectly terminated the

<sup>y</sup> Epidem. Lib. II. ibid. pag. 168.

<sup>z</sup> N<sup>o</sup> 134. Charter. Tom. VII. pag. 859.

<sup>a</sup> Epidem. 7. ægrot. 134. Charter. Tom. IX. pag. 600.

the disease on the seventeenth day : but as he observes in his Coan prognostics, there was another good sign supervened ; for on the same fourth day there was a small, but regular discharge of the menses.

Since therefore the ancients expected so much good from a copious hæmorrhage, more especially happening at a convenient time of the disease, it is no wonder if they were so careful to enquire after the signs which usually precede this evacuation, and denote it to be shortly at hand. They who in the cure of diseases rashly endeavour to govern nature, and attempt every thing blindfold, such commonly disturb the whole œconomy of nature, and despise a careful attention or observation of these signs in diseases, believing themselves able to perform every thing that is necessary by large bleeding, which they could hope for from an hæmorrhage at the nose. But they are very much deceived ; since numerous observations in the practice of physic teach, that a spontaneous hæmorrhage from the nose, happily cures diseases which have been in vain attempted by bleeding from a vein. Bennet<sup>b</sup> observes that a periodical hæmorrhage from the nose, protracts the fits of accession of the hectic in consumptions, and that it is much more efficacious for this purpose, than any repeated bleeding by the lancet, and has confirmed his opinion by practical examples. For, from the suppression of an hæmorrhage at the nose in a youth, there was a spitting of blood, together with the signs of a pulmonary consumption at hand, and which indeed was so much the more dangerous, because he had an hereditary disposition to a consumption from his parents. Phlebotomy was

<sup>b</sup> In Theatro tabidor. Exercit. 5. pag. 14, &c.



was of little service, but the hæmorrhage at his nose returning, freed him from the great danger that was threatened. In a man who was afflicted with a very dangerous quinsy, which not only threatened to intercept his swallowing, but likewise respiration, had been bled in the arms and feet, had been cupped in the nape of the neck and shoulders, and had clysters with many other things applied without effect; but afterwards the veins under the tongue being opened by incision, gave some hopes to expect the patient's recovery. But a very copious hæmorrhage following soon after from the nose, quickly put the patient out of all danger. Many more instances of the like kind might be alledged; but these may suffice to demonstrate, how much the salutary efforts of nature in the curing of diseases, are to be preferred before those which are attempted by art. Moreover, the blood being deprived of its thinnest parts in an ardent fever tends to concretion, and begins to stagnate in the arteries, whence it is accumulated in those vessels, and distends them; while in the mean time they press out only the more fluid parts of the blood into the veins; whence it appears that by opening a vein frequently in such diseases, is removed that part of the blood only which is best disposed to flow through the vessels; whereas an hæmorrhage from the nose, discharging the blood from the arteries themselves, turns off the impetus and quantity of blood, more especially from the encephalon, whose functions in these diseases are usually so much disturbed. Hence therefore arteriotomy or cupping with scarification, promise more relief: but it is evident from what was lately alledged from Bennet, that an hæmorrhage from the nose has much more apparently relieved the patient.

The physician therefore will best consult his own reputation and the interest of his patient, he is mindful of the admonition given by Hippocrates<sup>c</sup>, so as to make himself acquainted with the signs by which the future alterations in disease may be presaged. For by this means he will not only gain a greater confidence in his patient, which is a thing of the highest moment, *Curationem optime instituet is, qui ex præsentibus affectibus futuros prævidet. Sanos enim omnes ægros efficere, impossibile est: id enim foret præstantius, quam futura prænoscere, &c.* Namque & eos, qui servari possunt, multo etiam melius servare poterit, ex longo tempore singula præmeditatus; & morituros & evasuros præcognoscens & prædicens omni prorsus culpa vacabit. ‘But he will be likewise able to undertake the cure in the best manner, who from the present symptoms can foresee the future accident. For to cure all patients is impossible: otherwise this would be more desirable than the foreknowledge of future events, &c. For those who cannot be preserved, may be much better saved from a foresight of every accident, long before the time of its happening; and besides this, the physician who can foreknow or predict the death or recovery of his patients, will free himself entirely from all blame.’

All those signs ought therefore to be carefully remarked, which predict a salutary hæmorrhage from the nose in fevers, lest being ignorant of these we should impertinently sometimes disturb or hinder by remedies, the discharge which is about to happen.

This may be foretold from a pain in the neck. This pain in the neck is not very acute, but sometimes what

<sup>c</sup> In Prognostic. initio, Charter. Tom. VIII. pag. 583. &c.



what obtuse, with a sense of tightness ; whence in the Coan prognostic <sup>d</sup> we are told, *Capite gravati iuxta sinciput dolentes, pervigiles, sanguinem effundunt, tum alias, tum si quid in cervicem contendat.*

That they who have a heaviness of their head, with a pain about the forehead, with watchings, are about to have a flux of blood, if there is a tension of the neck with the other adjacent parts : and in another place <sup>e</sup> there is almost the like passage ; namely, ‘ if there is any tension in the neck.’ Whence it would seem to be rather a sense of tightness with an obtuse pain ; and therefore soon after we read the following prognostic <sup>f</sup> ; *Cervicis dolores, valde rubri oculi sanguinis eruptiones significant.* ‘ That pains in the neck with very red eyes, signify an eruption of blood.’ But here it is to be observed, that the words in the text do not simply denote a pain, but seem to signify a slighter kind of pain. This ought therefore to be distinguished ; because a very acute pain of the neck often presages worse consequences, namely, a tetanos and convulsions : and of such a pain Hippocrates <sup>g</sup> seems to speak, when he says ; *Cervicis dolor malum in omni febre, sed pessimum, quibus insania speratur.* ‘ A pain of the neck is bad in every fever, but is worst in those where there is reason to expect a delirium or ravings.’ So he likewise has observed <sup>h</sup> of convulsive pains in the neck ; and in another place <sup>i</sup> he joins an inflammatory pain of the neck, with a convulsive constriction of the jaws, and convulsions together. Such a troublesome tightness of the neck is used  
to

<sup>d</sup> N° 169. Charter. Tom. VIII. pag. 861.

<sup>e</sup> Prorrh. Lib. I. ibid. pag. 794. <sup>f</sup> Ibidem.

<sup>g</sup> Ibidem. pag. 749. & Coac. N° 274. ibid. pag. 867.

<sup>h</sup> Ibid. pag. 780. <sup>i</sup> In Coac. N° 262.

to precede an eruption of the menses in many women, as Hippocrates<sup>k</sup> has remarked; but we have already seen that a discharge by the menstrual flux is useful in these fevers. But this tightness in the neck will more certainly presage an hæmorrhage from the nose, if it is also accompanied with the other signs following, or with only some of them.

A heaviness of the temples, a darkness or mist before the sight, a labouring motion of the præcordia, without a sense of the pain, &c.] For by all these signs we know that the impetus and quantity of the blood, are derived towards the head; and therefore that we may hope an artery breaking in the nose will excite an hæmorrhage, after the usual manner followed by nature in the cure of diseases. But it is indeed true, that at the same time there is reason to fear, lest the brain being compressed by the quantity and impetus of the blood, should produce a delirium, convulsions, and other symptoms of the worst kind, unless prevented by a sudden hæmorrhage; but a faithful observation in diseases throughout all ages, has taught us that if all these signs, or several of them concur together, we need not be much afraid of those bad consequences; but a certain hæmorrhage will ensue that may remove them all. For the ancient physicians prudently esteemed all these symptoms, as signs of a critical hæmorrhage at hand, if they appeared at a seasonable time of the disease, and did not arise from an increase of malignity in the distemper, but from an irritation of nature disposing to a crisis. For which reason these signs were always suspected if they appeared in the beginning of the most acute diseases, before there

\* In Proorrh. Lib. I. Charter. Tom. VIII. pag. 796.



there were any signs of concoction. Hence, as we observed before from Hippocrates, in the comment to §. 594, the critical signs of a disease changing for the better, ought not to appear immediately, that is, in the beginning of diseases: and Galen<sup>1</sup> observes, that critical signs ought to appear neither at the beginning nor increase, but only towards the height of the disease. Nor did they confide in such signs as appeared towards the beginning of the disease, even though they continued to the time of the crisis. Hence Galen in the place before cited in the comment to §. 734, treating of involuntary tears, very carefully inculcates this admonition, when he enumerates the signs of a future hæmorrhage. For if the head should ach from a critical disturbance preceding, and the pain has not attended from the beginning of the disease, but is also accompanied with a pain in the neck, &c. if a sudden kind of difficulty arises in the respiration like an oppression on the thorax, &c. then he says, an hæmorrhage from the nose will ensue in a short time; and he admonishes physicians not to be terrified at the appearance, even though the patient should be delirious or seem convulsed. Even Hippocrates in the place before cited, only esteems involuntary tears as a sign of an hæmorrhage, when unattended with a fatal sign; for otherwise he tells us it prefigures death. Hence again, when he recollects all these signs, some of which point out a critical vomiting, he has the following words: *Quibus vero in hujusmodi febre (non lethali) caput dolentibus, pro tenebris ante oculos apparentibus visus hebetudo contingit, vel splendores observantur, & pro oris*  
VOL. VII. I *ventriculi*

<sup>1</sup> De Crisibus, Lib. I. cap. 8. Charter. Tom. VIII. pag. 387.

*ventriculi morfu in hypochondrio sive ad dextra, sive ad sinistra, aliquid contenditur, neque cum dolore neque cum inflammatione, illis pro vomitu sanguinem de naribus fluxurum expectandum est: magis autem juvenibus: trigessimum vero annum agentibus, vel senioribus, minus, sed his vomitiones expectandæ*

‘ But in those who being afflicted with this kind  
 ‘ of fever, not fatal, have a pain in the head, and  
 ‘ a dulness of the sight, appearing like a darkness  
 ‘ before the eyes, or who see lights, and feel a  
 ‘ sort of contention like the heart-burn in the  
 ‘ right or left hypochondrium, without great pain  
 ‘ or inflammation; in such a flux of blood is to  
 ‘ be expected from the nose instead of vomiting  
 ‘ more especially in young people: but in those  
 ‘ of about thirty or older, we are rather to ex-  
 ‘ pect a vomiting than an hæmorrhage from the  
 ‘ nose<sup>m</sup>.’ The like signs he says in another  
 place<sup>n</sup>, predict an hæmorrhage from the nose  
 as well in ardent as other fevers. But he likewise  
 ranks among these signs a redness of the face  
 when he says, *Febricitantibus, quibus quidem rubore  
 in facie, & capitis dolor fortis, & venarum pulsus  
 his sanguinis fluxio plerumque contingit.* ‘ A flux  
 ‘ of blood generally happens to those febrile pa-  
 ‘ tients who have a redness in the face, with a  
 ‘ violent pain in the head, and throbbing of the  
 ‘ arteries<sup>o</sup>.’ But Galen remarks, as we observed  
 before in the comment to §. 734, that an itching  
 of the nose denoting a greater tension of the blood  
 vessels, signifies not only a future, but even a  
 present hæmorrhage at hand: for as then the pa-  
 tient rubs his nose the blood immediately starts  
 forth

<sup>m</sup> In Prognostic. Charter. Tom. VIII. pag. 682.

<sup>n</sup> Epidem. 1. Charter. Tom. IX. pag. 60.

<sup>o</sup> Coac. Prænot. N<sup>o</sup> 143. Charter. Tom. VIII. pag. 859.



orth, as it sometimes does by sneezing. But so great a confidence had Galen in these signs, that he was bold enough to predict to other physicians before the patient, that such an hæmorrhage was about to follow, and even from the right nostril, and that therefore blood-letting ought not to be admitted, which they had all advised. For the patient being a young man, in the fifth day of the disease endeavoured to jump out of his bed to avoid a red serpent, which he thought he saw creeping towards him. There was a kind of obscure redness extended itself from the right side of the nose to the cheek, which appeared much more conspicuous than on the left, from whence Galen concluded, that blood was about to flow from the right nostril. In consequence of this, he secretly ordered a servant to provide a proper vessel for receiving the blood, and to conceal it under his cloaths. Soon after the patient feeling an itching in the nose, thrust up his fore-finger, and drawing it out bloody it was followed with a full stream, which the servant caught in the vessel that he had secretly provided. The physicians then present, who had laughed at this bold prognostic of Galen, upon seeing this, all of them walked off shame-faced <sup>P</sup>.

Besides these signs which have been already enumerated, there are still others found in Hippocrates denoting a future hæmorrhage in fevers, but always such as point out the impetus and quantity of the blood to be increased towards the head. Accordingly he refers hither a sudden anguish, with watchings <sup>q</sup>, redness of the eyes <sup>r</sup>, shaking

I 2

of

<sup>P</sup> Galen de Prænot. ad Posthumum, cap. 13. Charter. Tom. VIII pag. 851. <sup>q</sup> In Coac. Prænot. N° 113. <sup>r</sup> Ibid. N° 167. pag. 861.

of the head, and noise in the ears<sup>s</sup>, a sudden disturbance of the mind with anguish<sup>t</sup> and deafness<sup>u</sup>. But those signs which we have enumerated in the text are the most certain of all, the rest being not constantly present, but only at particular times.

But the reason of most of the symptoms preceding an hæmorrhage may be understood, because they seem to arise from a greater fulness and tension of the blood-vessels, distributed throughout the external and internal parts of the head. But the reason of that tension of the præcordia, which Hippocrates observes, without pain and inflammation, is not so evident: but in the mean time practical observations teach us, that there is a great consent betwixt the hypochondria and the nose. Thus Hippocrates remarks<sup>w</sup>, that those who are otherwise in health, but subject to an hæmorrhage of the nose, have a swelling of the spleen. I have known many who being accustomed to a bleeding at the nose in the spring time, have been able to foretell when it was at hand, from a pain about the region of the spleen, and sometimes also from a kind of palpitation perceived about the same place. Galen<sup>x</sup> immediately suppressed a profuse hæmorrhage that came from the right nostril, by applying a large cupping-glass to the right hypochondrium, and this even when ligatures had been applied to the limbs, with other remedies, to no purpose. But if the blood should flow from the left nostril, he orders the cupping-glasses to be applied to the region of the spleen; or if the flux come

\* Ibid. N° 158.

† Ibid. N° 185. pag. 862.

u Ibid. N° 196. pag. 863.

w Prorrhēt. Lib. II. cap.

16. Charter. Tom. VIII. pag. 826.

x De Prænotione a

Posthumum, cap. 13. ibid. pag. 851.



comes from each nostril, he would have a cupping-glass fixed upon each hypochondrium<sup>y</sup>. Accordingly Hippocrates<sup>z</sup> condemns an eruption of blood from the side opposite to that which is disordered; as when blood flows from the right nostril, when there is a swelling of the spleen, &c. From all which it is evident, how much this tension in the hypochondrium may be trusted to as a sign in this prognosis, even though the reason of all this is not evident from the hitherto known fabric of the body. It is sufficient for the practical Physician to be assured of this from observation only, that he may from thence be able to presage what will happen in diseases. See what has been said in the comment to §. 701, concerning the influence or consent which one part of the body has upon another.

To these signs deserve to be added, that presaging a future hæmorrhage from the nose, which is taken from the pulse only by the Spanish Physician, whose observations have been collected by James Nihell, as we observed before in the comment to §. 587, where we treated of a crisis; for by the rebounding pulse, as he calls it, (which seems to be that sort of pulse which the antient Physicians call double, when the artery in its dilation strikes the finger twice, before it is followed by the systole or contraction; from thence) he knew he might presage a future hæmorrhage: but from the interval betwixt those resiliations of the pulse, he determined the time when the future hæmorrhage was about to happen; so that if he observed the pulse to be thus rebounding once in about

I 3

thirty

<sup>y</sup> Method. med. Lib. V. & 3. Charter. X. pag. 107. Et Lib. de Curandi ratione per venæsect. cap. 11. ibid. pag. 789.

<sup>z</sup> Prorrhetic. Lib. I. Charter. Tom. VIII. pag. 789.

thirty strokes, he expected an hæmorrhage from the nose after the space of four days; but after three days if the pulse rebounded every sixteenth stroke; if every eighth, within two days; if oftener, within the space of twenty-four hours: and sometimes this last interval was regularly divided, whence he was exactly able to determine the time of the future hæmorrhage; but sometimes the order of the pulse rebounding being disturbed, he could not so exactly ascertain the time. But he predicted that the quantity of this evacuation would be large, if the second stroke of the rebounding pulse was stronger than the first, but small if the contrary; if they both appeared equal in strength he expected a moderate hæmorrhage. When the hæmorrhage began, the rebounding of the pulse lessened, and when the blood ceased to flow, it was perfectly imperceptible; unless, perhaps, such a crisis was to be repeated again in the same disease, as frequently happens; for then the rebounding pulse continued or returned again. But if this rebounding pulse was more perceptible in one hand than in the other, he generally observed that the blood flowed in the greatest quantity from the nostril on that side<sup>a</sup>.

The importance of this observation, and the authority on which it is given us, are sufficient motives to induce every Physician to observe this alteration of the pulse in fevers.

And this hæmorrhage is the best when it happens on the critical day.] In the comment to § 587, treating of a crisis observable in fevers, it was proved by many arguments, that such crises do really happen in diseases; and afterwards was determined from the writings of the ancient Physicians

<sup>a</sup> Nihell of the pulse, pag. 1, &c.



ficians, what ought properly to be called a crisis. But as our discourse there upon the crisis ran out to a great length, I deferred treating of critical days to the opportunity given us by the mentioning of them in this text. It will be therefore not improper to add something upon this subject in the present place.

A careful observation in diseases taught the ancient Physicians that crises happen in fevers; and, as they carefully remarked the changes which occurred almost every day, they saw that the most considerable alterations and discharges preceding a crisis, either accompany or follow for the most part, this or that day of the disease; and as they found this to succeed after the same number of days in several patients, they thence called those days critical or judicial; and therefore such days they watched more carefully in other patients, that they might discover whether nature attempted any thing of the like kind at the same time. From hence seems to have arisen the distinction of days in diseases, some of them being denominated critical, and others not. But Galen<sup>b</sup> has demonstrated from the histories of diseases, which he has described in Hippocrates's books of epidemics, that it was not any reason persuaded him, but use and experience which taught him to make the difference betwixt those days in which critical alterations might happen or not. For it was Galen's<sup>c</sup> belief, that the books of epidemics were first writ, and that from thence were deduced those general practical axioms which are found in the prognostics and other parts of the works of Hippocrates.

I 4

For

<sup>b</sup> Lib. II. de diebus decretor. cap. 5. Charter. Tom. VIII, pag. 480.

<sup>c</sup> Lib. I. de diebus decretoriis, cap. 3. *ibid*, pag. 454.

For although, says he<sup>d</sup>, *omnibus diebus morborum crises quandoque accidunt, tamen non in omnibus diebus æquales numero observantur, neque pares fide*:  
 ‘ crises sometimes happen on all days in diseases,  
 ‘ yet they are not observed to be equal in num-  
 ‘ ber on all days, nor equally to be relied on :’  
 whence it appears, that the Ancients with propriety called those days critical on which the greatest number and the most perfect crises were observed without any subsequent returns. Hence the seventh day holds the principal place among those which are critical, because the crises happen the most frequently upon that day ; insomuch that Galen<sup>e</sup> assures us, he could not number all the diseases which he had seen come to a crisis on that day ; but on the contrary he observes, that he had never seen any disease turn on the twelfth or sixteenth day ; and therefore on this account those days are justly expunged from the number of such as are critical. Nor ought these critical days to be remarked, merely because on these there is so frequently a sudden change of the disease to health, or at least a great alteration for the better ; but also because in the worst diseases death falls out upon the same days, or else a great alteration in the disease happens for the worse : hence Hippocrates<sup>f</sup> tells us, *Febres diebus numero iisdem judicantur, ex quibus homines tum servantur, tum etiam intereunt*.  
 ‘ That fevers come to a crisis on the same days  
 ‘ as to number, whereon people either expire  
 ‘ or begin to recover.’ Moreover Galen observes, that in diseases of long continuance, which he confirms by several instances in the books of epidemics, there are certain imperfect crises hap-  
 pen,

<sup>d</sup> Ibid. cap. 2. pag. 452.<sup>e</sup> Ibidem.<sup>f</sup> In Prognosticis, Charter. Tom. VIII. pag. 661.



ben, which afterwards return again when the disease has been silent for some days: and he there remarks, that it frequently happens that these returns begin upon some of the critical days, and after exceeding the number of some of the critical days, they again come to a crisis upon some other critical day <sup>g</sup>. He gives us a very fair instance confirming what was before said, in that patient who lay ill in the garden of Dealces <sup>h</sup>; for in this patient the crisis happened on the eleventh day, for his senses returning, the fever went off with a sweat; but he remarks that the urine being thin about the time of the crisis, denoted it to be imperfect; as those thin urines are always condemned by Hippocrates as bad in such diseases. Accordingly he continued free from the fever for two days, but it returned again on the fourteenth day with a delirium or watchfulness. But on the seventeenth day he had a sweat all over his body, which relieved the disorder, and brought him more to his senses: but the thirst and fever continued, and the urine was thin and not well coloured; and therefore a perfect crisis was not effected, even by this new endeavour of nature. On the twentieth day following he again sweated, and was free from the fever; but still the urine continued thin, and therefore the disease did not seem to be yet subdued, though he was at length free from it by a perfect crisis on the fortieth day, by a copious, white, phlegmatic discharge by stool, and a profuse sweat all over the body. But, as will presently appear from the enumeration of the days which Hippocrates calls critical, there markable

<sup>g</sup> Galen de diebus decretor. Lib. II. cap. 4. Charter. Tom. VIII. pag. 483. <sup>h</sup> Epidem. 3. ægrot. 3. Charter. Tom. IX. pag. 222.

able changes in this disease, as also the returns and at length the entire cure of it, always fell out on some of the days which are termed critical. The same may be demonstrated from many other instances in patients, whose histories are given up by Hippocrates; but this may suffice to prove that the alterations of diseases, either for the better or the worse, observe a certain order in the days.

Nor is it any objection to this, that sometime in the worst diseases the whole face of the symptoms is so disturbed, that one can hardly perceive any thing regular throughout the whole course; and nature being overcome by the violence of the disease, sinks under it after a longer or shorter conflict. For in the commentaries to §. 587. in treating of a crisis, we observed that crises do not happen in all diseases; which was confirmed by the testimonies of the ancient Physicians. Thus in the ardent fevers which spread epidemically, as described by Hippocrates<sup>i</sup>, he remarks, *Urinæ multæ tenues, nihil judicatorii, nihil boni, habebant, neque quidquam aliud decretorium si affectis apparebat, neque sanguis ex naribus probe effluebat, neque abscessus alius ex consuetis fiebat judicatorius; moriebaturque unusquisque, uti fors ferebat errabundè, plerumque circa judicationes.* ‘ That much thin urines had nothing good or critical in them, and that those thus affected, had no appearances of any other critical sign, no salutary efflux of blood from the nose, nor any other discharge which is usually critical; and that each of them died sooner or later, according as their strength would hold out, but for the most part about the critical times.’ For as in these diseases there were no crises, neither could there

<sup>i</sup> Ibidem, pag. 271, &c.



here be any critical days observed: but in other diseases which incline to a better or worse condition, to death or health, by a bad or good, perfect or imperfect crisis, an observation of the critical days is of the greatest moment.

But we have the following enumeration of critical days in Hippocrates<sup>k</sup>; for after having said that the slightest fevers which appear with the signs of the greatest security, terminate on the fourth day or before; but, that malignant fevers, and such as invade with the worst signs, kill about the same time, or before, he has the following passage: *Primus itaque earum insultus sic desinit, secundus ad septimum perducitur, tertius autem ad undecimum, quartus ad decimum quartum, quintus ad decimum septimum: sextus ad vigesimum, &c. Postea vero juxta eandem additionem eadem ratione primus circuitus est triginta quatuor dierum, secundus quadraginta dierum, tertius sexaginta dierum.* ‘In this manner therefore terminates the first insult of these diseases; the second is extended to the seventh day, but the third to the eleventh, the fourth to the fourteenth, the fifth to the seventeenth, the sixth to the twentieth, &c. But afterwards, according to the addition of these in the same proportion, the first circuit is that of thirty-four days, the second is that of forty days, and the third is sixty days.’ But in this aphorism<sup>l</sup> he says, *Septenariorum index quartus. Secundæ septimanæ octavus principium. Undecimus quoque spectandus dies est, is enim secundæ septimanæ quartus est. Rursus vero spectandus decimus septimus, is enim a decimo quarto quartus est & ab undecimo septimus.* ‘The fourth day is an index to the seventh,

<sup>k</sup> In Prognost. Charter. Tom. VIII. pag. 664, &c.

<sup>l</sup> Aphor. 24. Sect. II. Charter. Tom. IX. pag. 67.

‘ seventh, the eighth to the fourteenth or the be-  
 ‘ ginning of the second week ; but the eleventh  
 ‘ day is also to be considered, inasmuch as that is  
 ‘ the fourth of the second week. But again, the  
 ‘ seventeenth day is remarked, for that is the fourth  
 ‘ from the fourteenth, and the seventh from the  
 ‘ eleventh.’ What those days are which he calls  
 indicating, we shall explain hereafter ; but it is  
 sufficient here to observe, that it evidently appears  
 from these two passages cited from Hippocrates,  
 that he ascribes a great deal to the fourth and  
 seventh day of each week, for which reason he  
 would have them remarked.

But in his Epidemics<sup>m</sup> he ranks critical days in  
 another order : for he observes, that diseases which  
 have their fits of returning upon equal days, come  
 to a crisis upon even days ; and in like manner  
 that those which invade upon unequal days, have  
 their crisis upon uneven days. Hence he distin-  
 guishes critical days into two kinds : *Circuituum*  
*autem diebus paribus judicantium primus decretorius*  
*est quartus, sextus, octavus, decimus, decimus quar-*  
*tus, vigesimus octavus, trigessimus, quadragesimus*  
*octavus, sexagesimus, octogesimus, & centesimus. Cir-*  
*cuituum vero diebus imparibus judicantium primus*  
*est tertius, quintus, septimus, nonus, undecimus, de-*  
*cimus septimus, primus & vigesimus, vigesimus sep-*  
*timus & trigessimus primus.* ‘ But the first of the  
 ‘ critical days among the class of those which are  
 ‘ even, is the fourth, sixth, eighth, tenth, fourteenth,  
 ‘ twenty-eighth, thirtieth, forty-eighth, sixtieth,  
 ‘ and hundredth. But in the course or returns of  
 ‘ the unequal days which are critical, the first  
 ‘ is the third, fifth, seventh, ninth, eleventh,  
 ‘ seventeenth, twenty-first, twenty-seventh, and  
 ‘ thirty-

<sup>m</sup> Epidem. Lib. I. Charter. Tom. IX. pag. 95.



thirty-first.' But Galen<sup>n</sup> in his commentaries to this place observes, that Hippocrates here describes the critical days in the same order in which, they follow each other; but in his prognostics he accurately runs through the periods, which are made four in number. But in another place Galen observes, that after he had examined the two passages before cited, he again reckons up in his epidemics all those days in which crises have been sometimes observed, only with design to assist the memory; and here again he remarks, that Hippocrates wrote his books of epidemics before his prognostics and aphorisms; namely, that the latter might supply the memory with such things as had been before observed. And hence he concludes, that Hippocrates only remarks in his prognostics and aphorisms, such days *qui maximam potestatem habent, & naturæ suæ ratione perfecti sunt, & insuper non mediocrem usum ad futuri status & judicii prænotationem exhibent*: 'as were of the greatest consequence, and were most perfect with respect to their nature, and consequently were of no small use to point out a foreknowledge of the future height and crisis of the disease.' Hence appears the reason why Hippocrates seems to have cut short in his prognostics and aphorisms many of those numerous days, which he reckons up in the first book of his epidemics<sup>p</sup>.

Those days therefore which are continued on in the same course by fours or sevens, are more especially to be termed critical beyond the rest, and excel all others in their dignity, efficacy, and certainty,

<sup>n</sup> Ibidem, pag. 96.

<sup>o</sup> Lib. II. de diebus decretoriis,

cap. 6. Charter. Tom. VIII. pag. 484.

<sup>p</sup> Lib. I. de

diebus decretor. cap. 3. ibid. pag. 454.

tainty, and therefore they properly merit the name of critical. But the other days on which crises happen different from the former, are by Galen called coincidental, and are therefore esteemed a sort of inferior class of critical days, on which crises indeed sometimes happen, but more rarely, and with less safety. But Galen seems to have been of opinion, that critical days, properly so called, were those on which the regular course of diseases and the action of nature, (that is to say, all that is yet remaining of health in the patient operating upon the disease and morbid matter) produce these considerable, and often very sudden changes which happen at certain stated times. But by the term incidental days, he calls those on which the like disturbances are excited sooner or later than the stated times, either from an irritation of nature by a new attack of the disease, or from some error in the Physician, patient, or attendants; therefore such days were not in their own nature critical, but something else was required to make them so; as for example, a violent return of the disease, an error in diet, &c. whence the reason of a distinction of days into critical properly so called, and incidental is sufficiently apparent. Thus when the exacerbations happen on the third or fifth day, they are equally critical with the fourth<sup>1</sup>, for no other reason than because nature being often irritated by the violent accession, endeavours to expel from the body the matter of the disease by some critical evacuation before its due time. For the same reason also the sixth day, when the fits of increase fall out upon even days, is sometimes critical. Thus the virgin that

<sup>1</sup> Lib. III. de diebus decretoriis, cap. 8. ibid. pag. 500.

<sup>2</sup> Ibidem.



that lay ill of an ardent fever at Larissa, had a critical termination of it by a profuse hæmorrhage from the nose, with a copious and hot sweat throughout the whole body<sup>s</sup>. But Hippocrates observes, that the exacerbations attended upon even days; and adds, that this fever did not return, but came to a perfect and good crisis upon such a day, which he remarks as something extraordinary and unusual. For those crises which happen on the sixth day are always suspected by Galen<sup>t</sup>, who therefore calls the seventh a good critical day, but the sixth a bad critical day, as it rarely brings a good and perfect crisis, but almost constantly is attended with great danger and disturbance; see what has been said before upon this subject in the comment to §. 587.

This is the reason why there are more critical incidental days in the first septenary, within which space those fevers terminate, which are called peracute, namely, the third, fifth, and sixth, because in these very swift diseases there is generally observed such violent invasions or accessions, that the crisis is frequently accelerated, but with danger; whereas it ought to happen regularly on the fourth or seventh day, which are good and truly critical<sup>u</sup>. But in the second septenary the ninth is esteemed almost the only incidental critical day, namely, as Galen says<sup>w</sup>, *Qui inter dies criticos septimum & undecimum medius, vel non factum in septimo die judicium, vel undecimo futurum sibi vindicat, varius quidem septimi, sæpius vero undecimi crisin assumit.* ‘ That which intervenes betwixt  
‘ the

<sup>s</sup> Epidemicor. 3. ægrot. 12. Charter. Tom. IX. pag. 306.

<sup>t</sup> Lib. I. de Crisibus, cap. 5. Charter. Tom. VIII. pag. 457. & cap. 4. ibid. 456.

<sup>u</sup> Galen. Lib. III. de Crisib. cap. 8. Charter. Tom. VIII. pag. 502. <sup>w</sup> Ibid. pag. 501.

‘ the seventh and eighth critical days ; or when  
 ‘ the crisis not happening on the seventh day, it  
 ‘ claims to itself the privilege of appearing on the  
 ‘ eleventh, seldom on the seventh ; but oftener  
 ‘ the crisis happens on the eleventh day.’ For  
 the diseases which run out to a greater length than  
 the first seven days, have their course less impetu-  
 ous, and therefore nature is not so easily irritated  
 as to attempt a crisis before the due time. Hence  
 also the reason is evident, why after the fourteenth  
 day the critical incidental days are of little or no  
 consequence, and the crises happen only upon those  
 days which are truly critical.

It is therefore evident, that the best hæmorrhage  
 is that which happens on a critical day, namely, the  
 fourth, seventh, eleventh, fourteenth, seventeenth,  
 twenty-first, &c. which are legitimate, critical  
 days : but those hæmorrhages which happen upon  
 some incidental critical day, as the third, fifth,  
 sixth, or ninth, are less salutary ; but those hap-  
 pening on other days are altogether to be suspected.  
 But the same will also hold true of the other criti-  
 cal evacuations.

It may perhaps be objected, that an evacuation  
 of the morbid matter is always salutary, at what-  
 ever time of the disease it may happen, and that  
 therefore this tedious watching of stated times is  
 more troublesome than useful. No one can doubt  
 but it must be always serviceable for that to be  
 expelled from the body, which being left in it  
 would be injurious, provided the healthy good  
 humours are not discharged therewith, but there  
 is an entire evacuation only of such as are morbid  
 or if while this is performing, there are no such  
 great disturbances in the body as might give room  
 for other worse diseases to be feared. But it ap-  
 peared in the general history of fevers, that the  
 materia



material cause of the disorder is subdued by the fever itself, so as to be rendered moveable, and disposed for a discharge, provided only that the fever be so moderated or governed, as to be neither too sluggish not yet mischievous by its too great violence. (See §. 609.) But in order to this change of the morbid matter, which is called its concoction, a determinate space of time is required, varying according to the greater or less violence of the fever, and the more or less obstinacy of the matter to be subdued. Now the ancient Physicians by a careful observation of diseases found out these times, in which the morbid matter being subdued by the fever itself, and rendered moveable, was afterwards expelled from the body; and those times they called critical days. But those changes in diseases which happened at other times, they justly suspected, because they frequently proceeded not from nature prevailing over the disease, but from the violence of the fever itself, increased by some error committed either by the patient, Physician, or servants attending. For to make an exact separation of the morbid from the healthy humours is the work of nature only. When a violent and irresolvable phlegmon occupies some part of the body, it is not in the power of the most skillful anatomist so to separate the obstructed ends of the vessels, as to offer no injury to the other sound parts: yet nature, by a mild suppuration in a determinate space of time, performs this separation of the morbid from the healthy parts. Now the ancient Physicians had remarked, (as we said before upon another occasion, at §. 387, 593, 730.) that the putrefaction of the humours made in the vessels by fevers, was like that which happened to the humours in inflammations and abscesses; where nature overpowering the disorder

forms laudable matter ; but in the fluid of the arteries and veins, the forms that which answers a certain quantity of purulent matter in the urine. But, lest they should give offence by the term putrefaction, they observe, that this is not simply putrefaction, but has in it something of a concoction. Since therefore they observed a determinate space of time necessary for converting a phlegmon into an abscess, before matter could be formed ; so we likewise observe the same thing to be true in fevers. But now as it is improper to open an inflamed part, before the matter is completely formed ; so likewise evacuations made in fevers, before nature has subdued and separated the morbid from the healthy humours, can hardly be of any service ; either because they remove only part of the morbid matter, whence a return may be expected from what remains ; or else because with great violence they evacuate the healthy as well as the diseased humours from the body, while at the same time what is left behind continues equally disordered from the foul matter, which is not yet entirely separated.

Of how little use it is to attempt a separation of the morbid matter in diseases before the due time appears evidently from the small-pox ; which disease I therefore chuse for an example, because, far as I can find, the ancient Physicians have not described it ; and yet the critical days of the Ancients are in no fever more regularly observed than in this. The variolous contagion received into a healthy person, kindles a fever, by which fever the matter of the disease is deposited by a critical translocation towards the surface of the body. this happens on the fourth day of the disease, the fever abates, and all the symptoms not only diminish but frequently disappear, as we learn from  
dai



daily observation. But when the eruptions appear before that time, either from the too great violence of the fever, the perverse use of a hot regimen, or the use of heating sudorifics, with the weight of bed-clothes, &c. they are thicker, of a worse kind, and the symptoms do not much abate upon the appearance of the eruptions : infomuch, that Sydenham was already afraid of the small-pox being worse, as they appeared sooner before the fourth day. But if the eruption appear later, either from a weakness of the patient's strength, or from the impetuosity of the fever, so disturbing the whole œconomy, that a critical separation cannot be made of the morbid matter, the symptoms are observed to be the most malignant and irregular ; and the distemper almost constantly proves fatal.

From all this, I believe it is evident, that certain times are to be observed in fevers, in which the matter of the disease being subdued, changed, and rendered moveable, is afterwards expelled from the body, or deposited upon some other part. It is also equally evident, that a careful observation of these times is of the greatest use towards the cure of diseases, lest we should do mischief by unseasonable assistance from art ; as, when we endeavour to expel that which is not yet prepared to be evacuated, or else hinder the evacuation of such humours, as being subdued and concocted endeavour to escape by some convenient outlet. From thence also we learn, that those evacuations or considerable alterations ought not to be trusted which happen at other times of the disease, because they are seldom safe, or generally alter the disease for the worse, or at least occasion a return of it afterwards.

But that these critical days may be distinguished in diseases, it is necessary to know at what time we may begin to compute the invasion of the distemper; but concerning this we treated before in the comment to §. 590. It must also be observed, that by a day we understand the space of twenty-four hours, commonly distinguished into day and night, according to Galen <sup>x</sup>.

But since Hippocrates has divided the insults of diseases, so that the most acute extend to the fourth day; those of the second class to the seventh day, of the third to the fourteenth, &c. therefore the middle day of each week, namely, the fourth, and the last or seventh, Hippocrates would have us more especially observe; as is evident from the places before cited from his aphorisms <sup>y</sup> and prognostics. But in the mean time he does not extend the sixth class of acute fevers to the twenty-first, but only to the twentieth day, and joins the third week with the second, so that the last day of the second week may be esteemed the first of the third week; but he separates the first and second week from each other, by saying, that the eighth day is the beginning of the second week; and hence he calls the eleventh day the fourth of the second week: but the seventeenth day he calls the fourth from the fourteenth, and considers it as the seventh from the eleventh. From whence it plainly appears, that Hippocrates joins the second and third week together; and that the space of three weeks in fevers according to his computation contains only twenty days: this is also confirmed from what follows soon after the place before cited, where he says;

<sup>x</sup> Galen. de crisi bus, Lib. I. cap. 16. Charter. Tom. VIII. pag. 400.

<sup>y</sup> Aphor. 24. Sect. II. Charter. Tom. IX. pag. 67. In Prognosticis Charter. Tom. VIII. pag. 664.



days; *Post hæc vero eadem ratione, juxta eandem additionem primus circuitus est quatuor & triginta dierum, secundus quadraginta dierum, tertius sexaginta dierum:* ‘ But after these, in the same proportion, agreeable to a like addition, the first course is thirty-four days, the second forty days, the third sixty days<sup>2</sup>.’ Where it manifestly appears, that diseases running out to a great length have only every twentieth day critical, namely, the space of three weeks; whence, as we observed before, there are instances in his epidemics of a fever coming to a crisis on the eightieth, hundredth, or hundred and twentieth day of the disease. But although Hippocrates only, by an observation and conjunction of these weeks together, with a faithful observation in the practice of physic, discovered these truths, though he did not rightly understand the reason of what he observed; yet he seems to have acknowledged this difficulty, when, after enumerating the insults of diseases extending to the twentieth day, he immediately subjoins<sup>3</sup>; *Neque vero horum quidquam integris diebus exactè numerari potest, neque enim annus, neque menses integris diebus numerari solent:* ‘ Nor yet can we be able exactly to estimate any of these accounts from whole days, any more than years and months are not usually reckoned up by whole days.’ But Galen<sup>b</sup> enlarges this account, endeavouring to demonstrate it from the course of the moon, that three weeks do not contain twenty-one whole days, but that there is almost half a day wanting; and from thence he would infer, that the crises must rather happen on the twentieth than on

K 3

the

<sup>2</sup> Ibidem, Charter. Tom. VIII. pag. 665. <sup>3</sup> Ibid. p. 664.

<sup>b</sup> In Lib. III. de diebus decretoriis pluribus in locis, imprimis Capite IX. Charter. Tom. VIII. pag. 503.

the twenty-first day. But as we have frequently observed before, from what Hippocrates has collected in his epidemics, he deduced his general axioms, more especially those in his prognostics and aphorisms; and as in the histories of those patients given us in the first and third book of his epidemics, which are commonly esteemed the most genuine, there is not one instance of a crisis happening to fall out on the twenty-first day; but even, if I rightly remember, he does not so much as mention any thing which occurred in a patient on those days; whereas, on the contrary, he every where remarks what happened to those patients that could be observed on the critical days; whence the reason is evident, why Hippocrates exempts the twenty-first day from the number of those that are critical, and makes the twentieth day critical in its stead; namely, because on that day he had seen many fevers come to a crisis, either good, bad, or imperfect. Thus the wife of Philinus<sup>c</sup> expired on the twentieth day. And in Chærius, there was an imperfect crisis on the seventh day; on the ninth day there was a return, on the fourteenth there was an acute fever, on the seventeenth there was a fresh inclination to a crisis; and at length on the twentieth day there was an imperfect crisis<sup>d</sup>. Hermocrates on the twentieth day had an imperfect crisis, on the twenty-fourth he had a return, and on the twenty-seventh he expired<sup>e</sup>. So also in the patient who lay ill in the garden of Dealces, there was an imperfect crisis made on the twentieth day; but a perfect crisis did not happen till the fortieth<sup>f</sup>. But since Hippocrates observed, that the crisis happened

<sup>c</sup> Epidem. 1. ægrot. 4. Charter. Tom. IX. pag. 104.

<sup>d</sup> Epidem. 3. ægrot. 5. *ibid.* pag. 233, 234. <sup>e</sup> *Ægrot.* 2. pag. 210—219. <sup>f</sup> *Ibid.* ægrot. 3. pag. 222—228.



happened oftener on the fourth day of the first and second week, namely, on the fourth and eleventh day of the disease, therefore he esteemed those days as of the most importance in diseases; and as he saw the like frequently happen on the seventeenth day, he likewise made that for the fourth day of the third week; and then the twentieth was the last of the third week, which so frequently proved critical likewise; and therefore the reason is evident, why he joins the second and third week together in such a manner, that the fourteenth day is the last of the second week, and the first of the third. But that the seventeenth day was oftener critical than the rest, appears likewise from the history of the patients. Thus Herophon who had an imperfect crisis on the ninth day, had a return of his fever the fourteenth, and then again on the seventeenth he had a crisis, by which he recovered beyond expectation<sup>s</sup>. But the woman, who had a very difficult delivery of twins, died phrenitic on the seventeenth day<sup>h</sup>. In another place he also takes notice of many more ardent fevers, which came to a perfect crisis on the same day<sup>i</sup>; and in the epidemical constitution which he describes, Hippocrates remarks, that those who had a crisis on the seventeenth day had never any returns; whence the dignity of that day in the order of those that are critical is sufficiently apparent.

But he fairly confirms this order of the critical days by observing, that after the twentieth, the twenty-fourth, twenty-seventh, thirty-fourth, and fortieth, were also critical; then the sixtieth,

K 4

eightieth,

<sup>s</sup> Epidem. 1. ægrot. 3. pag. 103. *ibid*.

<sup>h</sup> Epidem. 3. ægrot. 14. *ibid*. pag. 308.

<sup>i</sup> Epidem. 1. pag. 43. & pag. 76. *ibidem*.

eightieth, hundredth, and the hundred and twentieth day ; and thus there is manifestly a return of the same order of the weeks : which is likewise evident in the histories of the patients given us in the first and third books of his epidemics, which could here likewise enumerate, but for the sake of brevity I rather chuse to refer to them ; for the truth of what is here affirmed will appear to any one who reads those books.

Yet it must not be denied, that Hippocrates in his aphorisms makes the twenty-first day critical ; for his words are these : *Sudores, si febricitantibus ceperint, boni tertio die, & quinto & septimo, & nono & undecimo, & decimo quarto, & decimo septimo, & vigesimo primo, & vigesimo septimo, & trigesimo primo, & trigesimo quarto. Illi enim sudores morbos judicant. Qui vero non ita fiunt, laborem significant, morbi longitudinem & reversionem.*

‘ Sweats in febrile patients are good if they begin  
‘ upon the third, fifth, seventh, ninth, eleventh,  
‘ fourteenth, seventeenth, twenty-first, twenty-  
‘ seventh, thirtieth, or thirty-fourth days ; for  
‘ these sweats terminate the disease. But the  
‘ sweats which happen not on these days denote  
‘ length of the disease, difficulty and returns of it.’  
Here it is to be also remarked, that he makes no mention of the fourth day. But Galen<sup>1</sup> in his commentaries to this aphorism believes, that this is omitted, because the diseases whose exacerbations happen upon uneven days come sooner to a crisis ; and he testifies upon his own knowledge and experience, that diseases seldom terminate on the fourth day by sweats. As for the twenty-first day it is not without reason that the passage is suspected to

\* Aphor. 36. Sect. IV. Charter. Tom. IX. pag. 158.

<sup>1</sup> Ibid. pag. 159.



to be corrupted, and that it ought rather to be read the twentieth, because there is no mention of the twenty-first day in the histories of the patients given us in his books of epidemics; as also because Galen in his commentaries to this aphorism makes no mention of this difficulty; though in his books upon critical days, he makes the twentieth and not the twenty-first to be critical, and gives us the reason, as we before observed, why the fourth day is not here taken in. Unless perhaps any one rather chuses to think, that this aphorism corresponds to the text before-mentioned in his epidemics<sup>m</sup>, where he reckons up the order of the returns of critical days to be upon uneven numbers; for there indeed these days are included. But then it appears that the enumeration of the critical days is most preferable, which he gives us in his prognostics; and from what has been already said it is evident enough, what we ought to think concerning the twentieth day.

Hence it appears, what judgment we ought to form concerning the following aphorism<sup>n</sup>, namely, *Febricitantem nisi diebus imparibus febris dimiserit, reverti consuevit*: ‘That fevers, unless they leave the patient upon uneven days, usually return:’ for in the first week of these fevers, which have their exacerbations upon uneven days, this passage may hold true; but it cannot be taken for an universal rule; since it appears from the epidemics and prognostics of Hippocrates, that crises happen without any return on the fourth day and on the fourteenth, on the twentieth and twenty-fourth, on the thirty-fourth and fortieth, &c. Hence Galen doubts whether this passage is genuine, and rather

<sup>m</sup> Epidem. Lib. I. Charter. Tom. IX. pag. 96.

<sup>n</sup> N° 61, Sect. IV. Charter. Tom. IX. pag. 173.

rather chuses to read critical for uneven day as we find it in the Coan prognostics°. Celsus upon reading these passages of Hippocrates, who ascribes the power of a crisis to uneven days only and again finding in another place, that Hippocrates makes even days as critical, was induced to believe *quacunque ratione ad numerum respexerimus, nihil rationis, illo quidem authore, reperiri*; ‘that whatever deference we ought to pay with respect to numbers, there was no reason for them to be found in that author;’ and he was of opinion, the ancient Physicians were deceived with the Pythagorean numbers: and this because they shift without any probable reason from the eleventh, not to the thirteenth, but to the fourteenth day, although they at first assigned uneven days only to be of an importance in the crisis. But Celsus seems to have been unhappy in his interpretation of the sentiments of Hippocrates in this place, which is not to be well understood, but by comparing it with other passages: but that this is true of Celsus appears evidently from his saying, that Hippocrates makes every fourth day the most efficacious; but he forgets this in what he before proposed, since the eleventh day from the seventh is not the fourth but the fifth. But Hippocrates<sup>a</sup> expressly observes, as we said before, that the eighth day is the beginning of the second week, and consequently that the eleventh day is the fourth of the second week. Hippocrates therefore did not derive this distinction of the critical days from any property in numbers, but from faithful observations in diseases; as will plainly appear to every one who attentively reads the writings of the ancient

<sup>a</sup> N° 82. Charter. Tom. VIII. pag. 856. & N° 147. ibid. 860. <sup>p</sup> Lib. III. cap. 4. pag. 121, 122. <sup>q</sup> Aphor. 2. Sect. II. Charter. Tom. IX. pag. 67.



ent Physicians. But since the observation of crises and critical days requires the most diligent and careful attention of the mind to every individual circumstance, it will not seem strange to any that the generality of Physicians should have neglected them; or that even some should maliciously deride the ancient Physicians, and those who follow in their footsteps (as we observed before at §. 87, where we treated of a crisis.) But to these may be justly applied the words of Celsus, who in treating of the time convenient for giving nourishment to patients, to determine which he judged great diligence to be necessary, he has the following words: *Ex his autem intelligi potest, ab uno Medico multos non posse curari: eumque si artifex est, idoneum esse, qui non multum ab ægro recedit. Sed, qui quæstui serviunt, quoniam is major ex populo est, libenter amplectuntur ea præcepta, qua seculitatem non exigunt.* But from hence we may understand, that many patients cannot be attended by one Physician; and that the Physician, if he is an artist or well skilled is the most useful, who does not much absent himself from the patient. But they who consult their profit, because that brings a person more into popular esteem, freely embrace such precepts or rules in practice, as will not give them much pains or trouble<sup>r</sup>.

But among the critical days which take in the middle of the week, or end it, as we said before, this difference is observed, that the crises happen not always on such days as are even in number, but on some more frequently than on others. Thus the seventh day, though it is the second in order among those which are critical, since the fourth is placed

placed before it, is nevertheless esteemed the first and most important by Galen<sup>s</sup>; because the greatest number of crises happen upon that day, and those perfectly with a manifest evacuation or deposition, and generally with a salutary event. Sometimes indeed, though rarely, the patient expires on that day, or else the disease then manifestly changes for the worse, and he expires on some following critical day, as for example, upon the eleventh. But Galen<sup>t</sup> assures us, he has so often seen crises upon this day, that he cannot number them; but the fourth day is critical only in the most acute diseases; but in other diseases it rather performs the office of an indicating day concerning which we shall presently treat. The next day to the seventh is the fourteenth, upon which the crises most frequently happen: after this follow the eleventh and twentieth, and then the seventeenth<sup>u</sup>. But this distinction is not so certain with respect to critical incidental days, concerning which we treated before; namely, the third, fifth, sixth, and ninth, since they are not critical in themselves, but rather become so accidentally from some fit of increase in the disease, or from some error committed in the diet, &c. But the sixth day, as we before observed, is more especially infamous beyond the rest for a crisis to happen upon, and for the danger of the disease and the fear of its relapse.

But it is moreover to be observed, that epidemic diseases more frequently keep to a constant order in their crises upon some certain day. Thus Galen<sup>w</sup> remarks, from the epidemics of Hippocrates,

<sup>s</sup> De diebus decret. Lib. I. cap. 4. Charter. Tom. VIII. pag. 455. <sup>t</sup> Ibid. cap. 2. pag. 452. <sup>u</sup> Ibid. cap. 5. pag. 458. <sup>w</sup> Ibid. Lib. II. cap. 3. pag. 477.



rates, that in one constitution almost all the patients had a perfect crisis on the seventeenth day, after a sort of imperfect crisis had preceded upon some day before, and the disease again returned. Hence also Galen concludes, that the seventeenth day in diseases is not one of those which are incidentally critical, but one of the most powerful and principal of the critical days. So likewise Sydenham observes \*, that the continual epidemic fevers which he describes, terminated critically about the fourteenth day ; therefore in this respect we ought always to have a regard to the genius or nature of the epidemical disease, in order to distinguish at what time, and by what passage nature will endeavour to terminate the disease.

Now according as the violence of the disease is more swift or slow, so the crises will happen sooner or later, and the critical days will be more or less distant from each other. Thus in those fevers which do not exceed the space of three weeks, the quaternary or septenary days are judicial or critical : and besides these in the two first weeks, there are many more incidentally critical days, as the third, fifth, sixth, &c. which we before observed. But if an acute disease extends itself beyond three weeks, then the quaternary days no more take place as critical, but only the septenary days are so ; though the efficacy of these last is likewise abolished after the fortieth day : for then every twentieth day only is esteemed critical by Hippocrates, namely, the sixtieth, eightieth, hundredth, and hundred and twentieth ; as is evident from his prognostics †, and the histories of patients which he gives us in his epidemics. For  
if

\* Sect. I. cap. 4. pag. 70.

† Charter. Tom. VIII. pag. 665.

if the morbid matter cannot be subdued, dissolved, and rendered moveable, so as to be disposed for evacuation within that course of acute diseases, which usually terminate in twenty days, nature then employs a longer space of time to perform this; and generally the disease being often silent for several days, and often making returns, at length she triumphs over the rebellious matter of the disease, by a perfect crisis upon some remote critical day; or frequently the stubborn matter of the disease is gradually and slowly subdued, and almost insensibly expelled, by various passages from the body, without that disturbance which is frequent in the first circuit, which terminates in twenty days, or else, being collected in some part of the body, it forms an abscess. Hence Galen observes <sup>z</sup>; *Usque ad quartum decimum quidem magnæ sunt perturbationes in morbis. Proximo loco succedunt, quæ usque ad vigesimum habentur. Omnes vero, quæ post hunc ad quadragesimum succedunt, paulatim remittunt vehementiam. Adeo ut, qui post quadragesimum sunt, omnes prorsus læguent, concoctionibus potius, & abscessibus, quam excretionibus morborum solutiones facientes. Accidunt in his quoque per excretiones interdum judicia, sed raro, neque magnum certamen habent, & frequenter pluribus diebus judicia complentur, maxime cum in abscessum vertuntur.* ‘ That great disturbances  
‘ happen in diseases until the fourteenth day. In  
‘ the next place to these follow the disturbances  
‘ which are less, in diseases extending to the  
‘ twentieth day. But in all those which succeed  
‘ after this to the fortieth day, the fevers gradually abate. So that those which come after  
‘ the fortieth, are altogether languid, terminating  
‘ diseases

<sup>z</sup> Galen. de diebus decret. Lib. I. cap. 10. ibid. pag. 466.



diseases rather by concoction and deposition or abscess, than by making excretions or evacuations. But sometimes even in these there are critical evacuations, though rarely, and without any great struggle, the crisis frequently taking up several days, more especially when it terminates by way of abscess.' For this is to be observed (as we said before in the comment to §. 587. where we treated of a crisis) that the crises of diseases of long continuance, do not only abate the violence of the critical disturbance, but they are also several days in performing the crisis. Hence Hippocrates, who absolutely points out the day on which there will be a change in the patient in that period which is limited to fourteen days, does nevertheless remark, that in more lingering fevers a crisis has been made, not upon any certain day, but about such a day; from whence also it is evident, how exactly and carefully he has delivered to us his observations of diseases. Thus in the first epidemical constitution which he describes <sup>a</sup>, he tells us, *Judicabantur autem inter hos, quibus brevissimi erant morbi, circa vigesimum diem; plurimis vero circa quadragesimum; multis circa octogesimum.* 'But such of these fevers as were of the shortest duration, came to a crisis about the twentieth day; but the majority of them about the fortieth, and many of them about the eightieth.' Thus also Clazomenius <sup>b</sup> is said to have recovered, not upon the fortieth day, but near or about it. And Heropytus <sup>c</sup>, after suffering various maladies through the long course of the disease, was greatly disturbed with many bilious stools about the hundredth

<sup>a</sup> Epid. 1. Charter. Tom. IX. pag. 30.

<sup>b</sup> Ibid. ægrot. 10. pag. 112.

<sup>c</sup> Lib. III. Epidem. ægrot. 9. ibid. pag. 303, 304.

dredth day, which continued for no small time; and at length he was afflicted with a dysentery and griping, till on the hundredth day there was a perfect crisis or change for the better.

But although acute diseases after imperfect crises do sometimes run out to so great a length, and at the same time the violence of those diseases seems to be abated; yet it must not be thought in such cases that length of the disease only is troublesome but without danger, and that therefore there is hardly any occasion to attend to the remote critical days, since those diseases gradually wear out: for Hippocrates has observed, that even such diseases have been sometimes mortal, and that the patient has expired upon some remote critical day. Thus the woman who was taken with an acute fever after her lying-in, perished on the eightieth day <sup>d</sup>. Another patient <sup>e</sup>, though free from the fever on the fortieth day, yet had a bad urine, was restless, had an aversion to food, and at length perished afterwards on the hundred and twentieth day: but Hippocrates remarks that he had eat of many and improper dishes, in order to caution Physicians not to confide in such imperfect crises; and to inform them that though diseases run out to a great length, yet great care is necessary to be used in the diet and regimen.

But those critical days on which the crises most frequently happened in diseases, the ancient Physicians have also termed indicating days, inasmuch as they point out what may be expected the next critical day, if the crisis does not happen upon them. For we have already seen that nature requires a determinate space of time in fevers to subdue

<sup>d</sup> Epidem. 3. ægrot. 2. ibid. pag 294.

<sup>e</sup> Ibid. ægrot. 1. pag. 291.



subdue the morbid matter, to dissolve it, render it moveable, and dispose it for evacuation. But while nature is employed in this work, there are certain changes happen, more especially in the urine, by which we discover that the febrile matter is disposed to be less offensive. These changes observed, are called the signs of concoction, and are constantly of so good account in diseases, that Galen always and absolutely esteems them for good signs, upon whatever day of the disease they may occur; whereas the signs of the crisis itself are sometimes to be suspected, as we have seen a little before hinted to us by Hippocrates, because they do not immediately appear to make an alteration for the better; namely, when they happen before there is any probable reason to hope that the febrile matter is subdued and rendered moveable. Hence Galen<sup>f</sup> tells us, *Coctionis signa sæpe enim, quæ utilissima sunt, repetere convenit) nunquam malè apparent, decretoria vero est ubi malè appareant); neque enim in augmentis, neque in principis, sed in statibus illa apparere convenit.* ‘That the signs of concoction appear never in vain, for that it is often convenient to repeat what is most useful, but critical signs may appear for the worse; nor ought these signs to appear either in the beginning or increase, but only about the height of the disease.’ And from hence he concludes, that the signs of concoction are always certain, but that the signs of a crisis are uncertain, according as they appear either alone or mixed with others, or at different times of the disease<sup>g</sup>. But what concoction is, and what the signs of it are, has been said before in the com-

VOL. VII. L ment

<sup>f</sup> De crisis, Lib. I. cap. 8. Charter. Tom. VIII. pag. 387.  
<sup>g</sup> alibi pluribus locis. <sup>g</sup> Ibid. cap. 14. pag. 398.

ment to §. 587, where we treated particular upon this subject.

But it seems to have been the opinion of the ancient physicians, that a careful attendance ought always to be given to critical days, not only because the crises of diseases usually happen upon them, but also because from the alterations of diseases observed on those days, we may be able to foresee what will happen for the future on the following critical days. For this reason Hippocrates in an aphorism lately cited, tells us; *Septenarium quartus est index. Secundæ septimanæ octavum principium. Undecimus quoque spectandus dies est. Enim secundæ septimanæ quartus est, &c.* ‘ The fourth day is an index to the seventh, and the eighth to the beginning of the second week, but that the eleventh day is also to be considered because that is the fourth of the second week &c.’ From which place it is manifest, that these days are called indicating with respect to future days in their own nature critical. Hence all after having observed, that it is difficult to know in the beginning of diseases, which of them will run out to the greatest length, because they begin like other diseases; Hippocrates<sup>i</sup> then adds the following passage. *Verum a primo die animadvertendum est, & ad quemque quaternarium additum considerandum, nec latebit, quo se versurus sit morbus, &c.* His igitur sic contingentibus, conjectar oportet tum ex tempore, tum ex unaquaque additione morbis ad crisin prodeuntibus. ‘ But the physician must attend to all the appearances from the very first day of the disease, and consider the sum of his observations upon every fourth day

<sup>h</sup> Aphor. 24. Sect. II. Charter. Tom. IX. pag. 67.

<sup>i</sup> In Prognosticis, Charter. Tom. VIII. pag. 665.



‘ by which means he will not be unacquainted  
 ‘ with the course that the disease is about to take,  
 ‘ &c. Therefore from the appearances which thus  
 ‘ happen, as also from the time and every other  
 ‘ accident that follows after, the physician is to  
 ‘ form his judgment in diseases tending to a crisis.’

From all which it is evident, that every one of the critical days bears a relation as an indicating day, with respect to the critical day next following: thus the fourth day may be an index to the seventh, the seventh to the eleventh, &c. And as after the twentieth day, partly from the less violence of the disease, and partly from the more stubborn nature of the morbid matter, the crisis does not fall within the limits of quaternary days, but generally such days as are septenary only; so the same thing takes place with respect to these days as indicators for the rest. Hence the reason is evident why Hippocrates<sup>k</sup> says; *Quibus die septimo contingit crisis, iis urina rubram habet die quarto nubeculam, ac alia secundum rationem.* ‘ When  
 ‘ a crisis happens on the seventh day, there is a  
 ‘ small red cloud in the urine upon the fourth  
 ‘ day, and other things are proportionable to this  
 ‘ appearance.’ But it is at least a sign of concoction begun, if the urine begins to have the like appearances with that of healthy people, and therefore a crisis may be expected upon the day next following. But where there are no signs of concoction, but rather signs of crudity are observed on the fourth day, and accompanied with malignant symptoms at the same time, then it may be feared that a bad crisis or death will happen on the seventh day; unless the disease is very acute,

L 2

and

<sup>k</sup> Aphor. 71. Sect. IV. Charter. Tom. IX. pag. 181. &  
 in Coacis Prænot. N° 575. Charter. Tom. VIII. pag. 885.

and subject to fits of increase upon even days; for then sometimes death happens on the sixth day, after being indicated by the fourth, as Galen<sup>1</sup> observes. Otherwise he affirms, that the fourth day is in its own nature an index to the seventh and that he knew this for certain from an accurate observation of acute diseases. Now according as the disease moves swifter or slower, so the indicating day demonstrates the critical day next following to be more or less distant, according as more or fewer signs of concoction attend upon such an indicating day, and as the other symptoms are milder or more malignant; for to all these a regard must be had, according to the advice given by Galen in the place lately cited from him.

If now the histories of those patients described in his epidemics, are compared with what has been said before, they will appear fairly to confirm the practical rules which are given concerning indicating days. Thus Silenus<sup>m</sup> had on the fourth day all the signs that were bad, whence there was reason to fear a bad crisis on the seventh day. Yet death did not happen on the seventh day, but the patient lay speechless, with a coldness of the extremities, which could be no longer retained warm, and he made no urine; and therefore as the seventh day is an index with respect to the eleventh, and all the bad symptoms were increased upon that day, therefore death was to be expected on the eleventh, as indeed it happened. In another patient<sup>n</sup> he remarks, that all the symptoms were exasperated on the seventh day, the urine had a bad appearance, and there were many more

<sup>1</sup> De diebus decretoriis, Lib. I. cap. 11. Charter. Tom. VIII. pag. 467.

<sup>m</sup> Epidem. 1. ægrot. 2. Charter. Tom.

IX. pag. 101.

<sup>n</sup> Ægrot. 12. ibid. pag. 114.



more malignant symptoms; but that patient also expired on the next critical day, namely, upon the eleventh. So likewise the eighth, tenth; and eleventh ° patient had the very worst signs upon the fourth day, and expired on the seventh. But although it sometimes happens that patients of a strong habit, and in the flower of their age escape the threats of death, both on the indicating and on the critical day, yet this is a very rare accident; and then, unless the disease changes for the better, they expire upon some other critical day; and in the mean time all the indicating days preceding that which is fatal, are attended with the most remarkable and malignant symptoms. Thus the woman who lay ill in the market-place of the Mendæ<sup>p</sup>, was attended with bad signs from the beginning, but on the fourth day every thing was worse; on the seventh day there were tossings of the whole body, with cold sweats, the extremities continued a long time cold, &c. which seemed to indicate death to be at hand on the eleventh; and yet she survived that day, although it was attended with green bilious vomits, a coldness of the extremities, and other malignant symptoms; but on the followings days every thing was changed for the worse, and on the fourteenth day she expired, even though an hæmorrhage happened the same day from her nose, which nature had hitherto attempted in vain. But, that sometimes the fourth day is an index to the sixth, we are taught by the history of Philiscus<sup>q</sup>, who had all the symptoms exasperated on the fourth day, and the urine was of a black colour, yet he expired not on the seventh

L 3

° Epidem. 3. ibid. pag. 242, &c.

<sup>p</sup> Ibid. ægrot. 12. pag. 252, 253.

<sup>q</sup> Epidem. 1. ægrot. 1. ibid. pag. 99.

venth but on the sixth day. But in the end of this history Hippocrates observes, that the exacerbations in this disease happened upon even days; and hence appears the reason why death was rather to be expected on the sixth than on the seventh day. Many more instances might be alledged from Hippocrates, to prove what has been said, but I believe these are sufficient to shew the importance of indicating days.

From all that has been said, it is evident that the prognosis in determining the events and times of diseases may be thus much promoted; and yet that there is no mathematical certainty in all this: and for this reason the ancient physicians were cautious in their presages, insomuch that though they could foresee death from the most malignant signs, yet they only declared very great danger, but seldom pronounced the patient's case to be entirely past help, hoping that something might be done for them to the last. On the other hand, tho' all the symptoms might seem mild enough in acute diseases, yet they neglected nothing, nor attempted any thing rashly, according to the admonition of Hippocrates<sup>\*</sup> himself, who says, that it is difficult to distinguish such diseases at the beginning, as come to a crisis in a long period of time, from those which terminate speedily, since they are often much alike in the beginning. For the physician would greatly damage his reputation by pronouncing a disease short and easy, if it should afterwards turn out long and tedious, even though it should run through its course with no danger; for in that case all the ill accidents are usually ascribed to the errors committed by the physician who has the care of the patient. Indeed the

con-

<sup>\*</sup> In Prognosticis Charter. Tom. VIII. pag. 665.



consequences are not so bad if the patient recovers whom the physician had pronounced to be past all hopes; for then the patient's escape from the jaws of death is often ascribed to the physician's skill afterwards exerted. But in the mean time it is best for the physician to be cautious in this respect, and to be always mindful of the admonition of Hippocrates<sup>s</sup>, mentioned before in the comment to §. 587. *Acutorum morborum non omnino certæ sunt prædictiones, neque mortis neque sanitatis.* 'Namely, that the predictions in acute diseases are not altogether certain, either with respect to death or recovery.' Nor yet will those who are sufficient judges in these matters, condemn a physician of wanting judgment, even though the patient should recover, whom he had pronounced to be past all hopes from the very worst signs observed; since even Herophon<sup>t</sup> escaped from the most dangerous disease beyond the expectation of Hippocrates.

But they are in a great error who from thence conclude the observation of indicating and critical days to be useless, because in some uncommon cases the events do not perfectly correspond to the presages made by the physician from the doctrine of these days. But concerning these matters, more may be seen in the comment to §. 587, where we treated of a crisis.

It is certain that Galen<sup>u</sup> who had been a thousand times present at crises, assures us, *Primum quidem & maximum signum instantis bonæ crisis cōtiones esse dixit; secundum autem, quod ab aliquo*

L 4

quo

<sup>s</sup> Aphor. 19. Sect. II. Charter. Tom. IX. pag. 59.

<sup>t</sup> Epidemicor. 1. ægrot. 3. Charter. Tom. IX. pag. 103.

<sup>u</sup> De crisiibus, Lib. III. cap 3. Charter, Tom. VIII. pag.

quo die indicatorio antea indicetur, cui annexa est die  
*judicantis potentia.* ‘ That concoctions make the  
 ‘ first and greatest sign of a good crisis at hand  
 ‘ but the second is what appears to be pointed  
 ‘ out before by some indicating day, which bears  
 ‘ the character or force of the critical day.’ It  
 is therefore evident, from all that has been hi  
 therto said, that the doctrine of the ancients con  
 cerning critical and indicating days, is of the  
 greatest use in physic; the importance of which  
 has been well remarked by Actuarius<sup>w</sup>, where he  
 says, *Atque & hæc in perfectis judiciis accidunt,*  
*quæ & in indicibus antea significantur.* Nam si quid  
*ipso (natura) in prædictis judiciis magni momenti est*  
*factura, id ante judicii diem in indice quasi præludens*  
*nunciat.* Quare aut exigui sudores, aut sanguinis e  
 nare stillæ, aut parum cocti sputi educitur, atque  
 aut pusillum, aut majus quippiam ante apparet: &  
 nisi forte quod materia turgeat, aut ægri vires validæ  
 sint, præeuntes significationes judicium antevertat, non  
 aliter quam in aliis per contraria pedetentim id, quod  
 noxium est, crebris judiciorum circuitibus coquitur  
 expelliturque. ‘ Moreover, the same things happen  
 ‘ in perfect crises, which were before pointed out  
 ‘ by the indicating days. For if any thing of  
 ‘ great moment is about to be done by nature  
 ‘ herself in the forementioned crisis, she declares  
 ‘ it in a manner by a sort of prelude upon the  
 ‘ indicating before the critical day. Therefore  
 ‘ small sweats or drippings of blood from the  
 ‘ nose, or a discharge by spitting little concocted,  
 ‘ either very scanty or more copious, first appears:  
 ‘ and unless perhaps the morbid matter grows  
 ‘ turgid or active, and the patient’s strength is confi  
 ‘ derable, the indicating signs preceding, anticipate  
 ‘ the

<sup>w</sup> Method. Med. Lib. II. cap. 3. pag. 60.



the crisis no otherwise than in some cases on the contrary, the offending matter is slowly concocted and expelled by frequent returns of crises.\*

But it must not be imagined, that in the cure of diseases a bare enumeration of the days will enable the physician to make a presage from thence, and to commit all the rest to nature, contenting himself always, and in every case with performing the part of a spectator only. For it is evident from what we said before concerning the general cure of fevers, that to subdue, concoct, and render the morbid matter moveable and disposed for evacuation, requires such a moderation of the fever, that it may be neither too dull, nor yet destroy the body by its raging impetuosity: and at the same time the patient's strength and vital powers must be supported by a suitable diet, the symptoms must be mitigated, and those endeavours of nature promoted by proper remedies, by which she attempts to subdue and expel the matter of the disease; those passages are to be lubricated, by which we have reason to expect the matter to be expelled will make its escape; all obstacles are to be removed, &c. Nor is this all that is to be done, but when there is reason to expect a future ill crisis, all the endeavours of art are to be used to prevent it. Thus when Sydenham<sup>x</sup> observed a perpetual nausea and endeavouring to vomit attend in continual fevers, and then in the course of the fever, that the malignant humour, though in some measure subdued, was determined towards the intestines, and then towards the end of the disease that a diarrhœa followed, but often with so great violence, that it made a very bad crisis by exhausting the patient till he expired, his

\* Sect. I. cap. 4. pag. 63.

his strength being already destroyed by the course of the disease ; but by a vomit given in the beginning of the disease he usually prevented the fatal crisis ; but after this has been done, the whole cure consists in keeping the fever under a due regulation, by depressing it when too violent, and by raising it when too languid<sup>y</sup> ; and this more especially towards the end of the disease ; for though by the use of cordials he safely promoted the critical separation and expulsion of the morbid matter, which in this disease usually happened about the fourteenth day by a moderate sweat. When it appears that this great physician was not merely an idle spectator, but a diligent servant to nature and that by a careful observation of diseases, he knew how to remove the impediments, and when to apply such things as would promote the endeavours begun by nature, and to avoid such things as might be of any hindrance ; although he made use of no great apparatus of medicines for the purposes ; but in people of the lower rank, to save them from expences, he brought about his intentions only by the most simple and cheap remedies. But when that due moderation of the fever appeared, of which we spoke before at §. 609, he ingenuously confesses, that he made use of no medicines at all, unless the importunity of the patient or his friends extorted something from him<sup>z</sup> and in such cases he only ordered what might be pleasing to the patient, and in the mean time could be of no injury. He was therefore far from being of the opinion of those physicians who by bleeding, purging, and the like, disturb the whole face of the appearances in diseases ; concerning

<sup>y</sup> Ibid. pag. 68.<sup>z</sup> Ibid. pag. 75.



concerning which physicians, Galen \* justly observes, that they are the instruments of mischief but as often as they are called to sick people; for such think it a crime unless they attack the disease every day with different and violent medicines. But Sydenham has taught in many parts of his works, with what unhappy success these methods were prosecuted in the cure of diseases, either by too much raising the violence of the fever by stimulating remedies, or by too much depressing it in the contrary method by bleeding, purges, clysters, and the like, so frequently repeated, as to depress and even destroy the patient's strength, together with that of the disease. For by the former method, inflammatory fevers are soon rendered fatal; but by the latter, fevers which often seem subdued, return again after a deceitful truce, and sometimes even continue stubborn for forty days and longer; whereas if they had been rightly treated, they would have run through their whole course in the space of a fortnight.

Nor are we to believe that a prudent use of such things as may serve to moderate the violence of the fever, can easily disturb the order of the crises and critical days; or that such days can be of no use, unless the whole business of the cure is left to nature. For although Sydenham opened a vein, and oftentimes gave a vomit, or injected a clyster in the beginning of the disease, if the violence of the fever required it; yet the disease went regularly through its course, because he always cautiously avoided not to depress too much the strength of the fever. Thus I have seen a copious hæmorrhage succeed from the nose on the seventh

\* De diebus decretor. Lib. I. cap. 9. Charter. Tom. VIII. pag. 468.

a Sect. I. cap. 4. pag. 63, &c.

seventh day of the disease, even though I bled the patient twice before in an acute fever, and I believe the truth of this will appear plain to every one who carefully attends the cure of diseases.

Sometimes the fever goes off likewise on a critical day by vomiting or a diarrhœa.] We have already demonstrated of how great importance evacuations are in diseases, when they happen on critical days; nor is this true only of an hæmorrhage from the nose, but likewise of the other evacuations enumerated in the present aphorism of this section. But since so many viscera may discharge themselves by these passages, and even the whole body may derive its humours by these ways, as we demonstrated before, when we treated of a vomiting and diarrhœa as symptoms in fevers, therefore the reason is evident why the matter of the disease is so often critically discharged by these passages. But it must be observed, that not every vomiting or purging is useful in this respect; for a vomiting we before ranked among the malignant symptoms of an ardent fever, §. 739; and will presently appear under the present aphorism that too great a flux from the bowels is fatal in an ardent fever. For we here treat only of the vomiting and purging which happens in a fever after a concoction upon a critical day, and after which the relief perceived, demonstrates their salutary effects ensuing toward the patient: for by this criterion Hippocrates<sup>b</sup> more especially distinguishes these salutary evacuations, from such as are symptomatic and mischievous; namely, they are serviceable or relieve the patient, and are easily supported, as we said more at large in the commen

<sup>b</sup> Aphor. 2. Sect. I. Charter. Tom. IX. pag. 5.



comment to §. 594, N° 2 ; where we also treated the signs which usually precede a critical vomiting or diarrhœa ; and we likewise remarked, that a crisis seldom goes off by vomiting only, but usually attended with a diarrhœa at the same time.

By sweat.] Namely, such as is warm, copious, and diffused equally throughout the whole body. See what has been said concerning a critical sweat, in the comment to §. 594. N° 2, where we also enumerated the signs by which a critical salutary sweat might be distinguished, and foreknown when about to happen.

By urine.] Although by the urinary passages are naturally expelled such parts of the humours, as being rendered acrimonious by the force of the circulation, would be mischievous if they were any longer retained in the body, yet the matter of the disease very rarely escapes this way only, but generally other evacuations assist at the same time. And hence a plentiful and laudable sediment in the urine is rather to be esteemed a sign of concoction, than that an entire cure may be expected by that discharge only. Thus Hippocrates<sup>c</sup> indeed remarks, that a plentiful discharge of urine, containing a great deal of a laudable sediment, a bleeding from the nose, and bilious stools, or a dysentery, are the four ways, by which the patients were preserved who were afflicted with the ardent fever of an epidemical constitution which he describes: but at the same time he takes notice, that many of those patients were not cured by one only, but by several of the forementioned evacuations happening at one and the same time. But again, concerning the critical evacuation of the febrile

<sup>c</sup> Epidem. I. Charter. Tom. IX. pag. 74.

febrile matter by urine, you ought to consult what has been said before at §. 594. N° 2.

Hence also Galen<sup>d</sup> esteems an hæmorrhage from the nose, and a copious sweat following after violent rigor or shivering, and flowing from the whole body, also a bilious discharge by vomitting or stool, for the ways by which an ardent fever usually terminates critically.

By a thick spitting.] Since an ardent fever, as we shall declare in the aphorism next following acknowledges for its proximate cause too great thickness of the blood deprived of its more fluid parts, therefore the blood will be thus rendered greatly disposed to hesitate in the smallest extremities of the arteries, the pulmonary arteries will begin to be stuffed up and obstructed with impervious blood; which appears from the deep, laborious and quick respiration, with a burning heat about the vital organs, the air itself expired being almost scalding, as we said before at §. 739. Hence also Hippocrates<sup>e</sup> observes, that an ardent fever usually turns to an inflammation of the lungs; and he remarks, that in this disease a bilious spitting is discharged: and in another place<sup>f</sup>, that such patients spit much, and are afflicted with an empyema or purulent spitting. For the same reason he reckons up a slight cough among the symptoms of an ardent fever (§. 739.) When therefore this disease inclines to health, the impervious parts of the blood which hesitated in the pulmonary vessels, begin to be dissolved, and are expressed through the dilated orifices of the exhaling arteries, dispersed

<sup>d</sup> De crisiibus, Lib. III. cap. 4. Charter. Tom. VIII. pag. 430.

<sup>e</sup> De Affectionibus, cap. 3. Charter. Tom. VII. pag. 622.

<sup>f</sup> De Morbis, Lib. II. cap. 25. ibid. 556.



perfed throughout the area or furface of the lungs;  
 as to form a thick fputting, as we fhall fee  
 hereafter when we come to treat of a peripneu-  
 mony. Moreover, in this difeafe the whole fur-  
 face of the lungs expofed to the air is often dry,  
 in the fame manner as we fometimes obferve in the  
 mouth, fauces, and tongue; and in the fame man-  
 ner as we often afterwards obferve entire fkins to  
 be caft off from the whole internal furface of the  
 mouth, together with a tough viscid mucus; fo  
 something of the fame nature feems to be performed  
 in the lungs, whence the fputting in fuch a cafe  
 appears at firft thick and brown or difcoloured,  
 and is afterwards difcharged more viscid and tena-  
 cious. Hippocrates<sup>s</sup> ranks a thick fputting amongft  
 the critical evacuations of a fever, when he fays;  
*Et fi fanguis è naribus effluxerit, folvitur affectus,*  
*atque fi fudores supervenerint judicatorii legitimi cum*  
*urinis albis crassisque, & lævibus sedimentis, ac fi*  
*abscessus aliquis ortus fuerit. Si vero absque his solu-*  
*a fuerit (febris ardens) recidiva morbi rursus erit,*  
*aut coxæ aut crurum dolor aderit, expuetque crassa,*  
*et sanus futurus fit:* ‘If now blood flows from the  
 nofe the difeafe terminates, as it alfo does if cri-  
 tical fweats fupervene with thick and white urine,  
 and a light fediment; as alfo if fome abfcess  
 fhould arife. But if the ardent fever goes off  
 without thefe, there will either be a return of  
 the difeafe, or if the patient recovers health,  
 there will be a pain or abfcess at the hip or  
 thigh, and a thick fputting.’

But foon after he mentions<sup>h</sup> a thick fputting as  
 critical in an ardent fever. But Galen<sup>i</sup> obferves,  
 in his commentaries to this place, that fuch a thick  
 fputting

<sup>s</sup> De victu in morbis acutis, Charter. Tom. XI. pag. 122,  
 123. <sup>h</sup> Ibid, pag. 126. <sup>i</sup> Ibidem.

spitting happens only when the lungs themselves have been affected in the ardent fever. But as the lungs are seldom affected of themselves, without almost all the other functions of the body being disturbed, it is evident that a thick spitting may frequently concur together with other critical evacuations, but that the disease is seldom or never critically terminated entirely by such a spitting.

A return or increase of the fever upon an even day before the sixth, is extremely bad.] An exquisite ardent fever, as we said before at §. 738 retains all the appearances of a tertian, from which it differs only by not invading with a rigor or cold shivering, and in having no perfect intermission and therefore it is evidently peculiar to an exquisite ardent fever, to have exacerbations or fits of increase upon uneven days. If now at the same time and on an even day a new accession happens when the violence of the disease used to be more remiss, the patient will find himself to be so much the worse, and his strength will be so much the sooner exhausted. But if an ardent fever arise from the conjunction of a continual fever with an intermitting tertian, (See §. 738.) so circumstanced that the first fit of the tertian falls out upon the second day of the disease, and exacerbations appear upon even days; namely, the fourth, &c. it is therefore esteemed one of the worst signs, because then the exacerbation falls out upon the sixth day of the disease. But such diseases as have their exacerbations upon even days come to a crisis also upon even days, as we said before in treating upon critical days under the present aphorism; and therefore there is danger of a crisis happening upon the sixth day. But it appears, from what has been said before, how infamous the sixth day in diseases was reckoned among the ancient physicians, since the



the crises happening on those days were for the most part either malignant, or at least imperfect; and if they were at any time of service on that day, it was always with great disturbance and great danger attending at the same time.

Hence the reason is evident, why the accessions upon even days before the sixth are so dangerous; but after the sixth day there is less danger, because the next fit of increase following falls out upon the eighth day, and there is no such great danger of the patient's perishing on the seventh, which is milder; and therefore when the disease gets over the seventh day, it will not be an exquisite ardent fever, which Galen affirms to terminate within the first week in the passage before cited under the present aphorism. Such a fever will therefore belong to those which are called simply acute, and which usually terminate for the most part in fourteen days time: and as the fourteenth day is both even, and at the same time a day remarkably critical, if the exacerbation falls out upon it, there is reason to hope that a perfect crisis will happen the same day. Thus the just observations of Hippocrates<sup>k</sup> are fairly confirmed. For in those afflicted with ardent fevers, and who seem to be the most in danger, he remarks among other bad signs that the accessions happened upon even days, that the symptoms were the worst upon the fourth, and that they died with a sweat upon the sixth. Thus also in another epidemical constitution<sup>l</sup>, ardent fevers were very fatal; and he remarks, that many patients had exacerbations upon even days.

<sup>k</sup> Epidemic. Lib. I. Charter. Tom. IX. pag. 70.

<sup>l</sup> Epidemic. Lib. III. *ibid.* pag. 274.

In this case a black thin urine small in quantity is fatal.] Hippocrates<sup>m</sup> condemns black urines in his prognostics as the worst and most fatal, and even Galen<sup>n</sup> testifies, that he never saw any recover after voiding such urine, and makes it a sign of an internal mortification; as if the humours being corrupted and gangrenous, then escaped through the urinary passages. But he makes that kind of urine less dangerous in which only the sediment is black; and still much less dangerous is that in which only a small black cloud appears. And for this reason Hippocrates seems in his Coan prognostics<sup>o</sup> to say, *Perniciosa est urina nigrum sedimentum habens, & nigra*: ‘That black urine which has a black sediment is very pernicious.’ For soon after<sup>p</sup> he says, that black clouds in the urine denote a quartan fever in such as are erratic. Such an urine is therefore more especially esteemed fatal, when it is all over uniformly black, and more especially if it is likewise foetid at the same time. But the danger is more increased if such urine is also thin and small in quantity, because it denotes a gangrenous disposition of the humours, while in the meantime such as are corrupted are for the most part retained, and not sufficiently discharged by the urine. And hence Hippocrates<sup>q</sup> remarks, that the urine was black, thin, and small in quantity in those who expired of ardent fevers.

But lying-in women more especially are relieved by discharging a great quantity of black urine, when they labour under a suppression of the lochia,

<sup>m</sup> Charter. Tom. VIII. pag. 635.

<sup>n</sup> De Crisibus, Lib. I. cap. 12. *ibid.* pag. 395.

<sup>o</sup> N<sup>o</sup> 580. *ibid.* pag. 886.

<sup>p</sup> N<sup>o</sup> 582. *ibid.*

<sup>q</sup> Epidem. Lib. I. Charter. Tom. IX. pag. 70.



Galēn<sup>r</sup> remarks in his comments upon the diseases of a lying in woman, who from a suppression of the lochia was taken with an acute fever the third day after delivery, and who made a great quantity of thin black urine upon the eleventh day; but afterwards turning watery, the woman died on the eightieth of the disease.

But in his epidemics there is the case of a patient who recovered though he made thin and black urine. Thus Nicodemus<sup>s</sup> on the first day of the disease made thin and black coloured urine, as also on the second day, when yet on the twenty-fourth day there was a great quantity of a white urine with a copious sediment, and a plentiful hot sweat appeared all over his body, which terminated the disease critically; and this although the fever had perpetual exacerbations or fits of increase upon equal days. But in this patient on the fourth day of the disease the urine was thin, but we do not read of its being black. And the cross woman<sup>t</sup> who lay ill in Thrace, though she made thin and black urine about the third day, had yet a critical sweat on the night following the third day, which terminated the disease, the menses appearing also at the same time with the crisis. In Herodotus the urine was thin and black in the beginning of the disease until the fourteenth day, and yet he had a crisis on the hundredth day<sup>u</sup>. But it is to be observed, that in these patients the urine was indeed black and thin; but Hippocrates does not add, that they were also small in quantity: and therefore from hence it cannot be concluded, that

M 2

black

<sup>r</sup> In Commentario 3. in Lib. III. *ibid.* pag. 295.

<sup>s</sup> *Ægrot.* 10. *Epidem.* 3. *Charter.* Tom. IX. pag. 304.

<sup>t</sup> *Ægrot.* 11. *ibid.* pag. 305.

<sup>u</sup> *Ægrot.* 9. *ibid.* pag. 303.

black urine, thin, and small in quantity, is not always fatal. But in Metones<sup>w</sup>, who also escaped the urine was thin and blackish coloured, and had likewise a blackish diffused cloud; and was therefore less malignant than perfectly black urine.

A spitting of blood, as also bloody urine is fatal.] For these denote, that the force of the blood moving through the vessels is so great as to break them, and extravasate their contained blood; but how great danger there is, when this accident happens in the vessels of the lungs, readily appears, if we consider that in an ardent fever the blood is very swiftly moved through the pulmonary vessels, and that therefore these ruptured vessels will be every moment kept open by the impulse and quantity of the blood, so as to prevent all hopes of their healing up or closing; which in an hæmoptoe can be only cured by such things as render the motion of the blood extremely quiet through the vessels, and at the same time render them mild without the least acrimony; the contrary of all which takes place in the present disorder.

But that discharge of blood which is made by urine, happens chiefly perhaps from the saline and oily parts of the blood being rendered more acrid by the most acute fever (See § 100.) and which ought to be naturally evacuated by this emunctory, the small vessels of which they corrode; and therefore this sign denotes the very worst kind of degeneration in the humours. Those hæmorrhages therefore which happen by these emunctories are never critical, nor arise from the strength of nature overcoming the disease, but from the most violent insult of the disease and increased acrimony of the humours:

<sup>w</sup> Ægrot. 7. Lib. I. Epidem. ibid. pag. 109.



humours: whereas, on the contrary, an hæmorrhage from the nose is frequently observed salutary in an ardent fever, as we observed before: and hence bloody urine or a violent eruption of blood from the lungs in the small-pox, were always esteemed the most certain signs of death by Sydenham<sup>x</sup>, who confesses, he was by no means able to suppress these hæmorrhages.

The deglutition being injured is bad.] How great a dryness of the fauces, tongue, and all the internal parts of the mouth sometimes happens in ardent fevers, we said before at §. 739, but from so great a dryness of these parts the swallowing is injured; and therefore this symptom is bad both as a cause and as a sign. As a cause, inasmuch as the cure of this disease requires a large quantity of thin watery liquors to serve as a vehicle to throw out the matter of the sweat and urine, as we shall observe hereafter at §. 743, under the cure of an ardent fever. But an injury of the deglutition is a bad sign, because it denotes a very bad dryness of the organs serving to the act of swallowing; and even sometimes it denotes an inflammation of them, although dryness alone may injure the deglutition, and frequently does impede it in ardent fevers. Hence Hippocrates<sup>y</sup> says, *In febris derepente suffocari, & deglutire non posse, citra tumorem, malum*: ‘For the patient to be suddenly taken with a sense of suffocation; and inability to swallow without a tumour, is bad.’

A coldness of the extremities is very bad.] Namely, when the extreme parts of the body no more recover their warmth, or at least continue cold for a long time. For since an ardent fever is

<sup>x</sup> Sydenham. Sect. III. cap. 2. pag. 197.

<sup>y</sup> Coac. Prænot. N<sup>o</sup> 278. Charter. Tom. VIII. pag. 367.

a kind of continual remittent, (as we said before §. 738.) and the remissions are often manifest, and there are likewise exacerbations observed in the fever; the extremities are often cold at the time when the fit of increase comes on, almost in the same manner as happens in the beginning of the fever (See §. 563.): but the cold arises in the extremities from this cause soon ceases, and is followed with an intense heat; whence such a coldness is no very bad sign. But when the blood become so thick by the heat of an ardent fever that it is scarce able to pass through the smaller arteries, it then cannot be propelled to the extremities of the body, but continues only to be moved with a rapid motion through the larger and adjacent vessels about the heart: (See §. 739.) but the coldness of the extremities continues a long time inasmuch that frequently the parts no more recover their heat; as happened to Philiscus<sup>z</sup>, Silenus and many other patients who perished, and whose histories are given us by Hippocrates in his book of epidemics.

A redness and sweating of the face are also bad signs.] When a warm sweat is equally diffused throughout the body, it is one of the very best signs and an ardent fever, as we have already seen, frequently terminates by such a sweat. But we here treat only of the sweat observed in the face and head which frequently happens in dying people. For we see in acute diseases a little before death, that although the skin has continued extremely dry throughout the whole course of the disease, yet there are drops of sweat burst forth without running down, but retaining their figure adhere to the skin, and commonly

<sup>z</sup> Epidem. 1. ægrot. 1. Charter. Tom. IX. pag. 99.

<sup>a</sup> Ibid. ægrot. 2. pag. 101.



only such sweats are also cold; concerning which, Helmont expresses himself in an odd manner, (see the comment to §. 432.) ; *Quod non sit tam atrox in sua natura, quantum ros alimentarius resolutus, cui mors imperat.* ‘ That it is not so much sweat in its own nature, as the alimentary dew, or most fluid part of the juices dissolved and commanded to the skin by death.’ But sometimes also, such a hot sweat as is collected in drops upon the face, appears as a bad sign; for then the blood being impelled by the violence of the fever into the smaller vessels, causes the face to look red; and at the same time the most fluid parts are expressed by the impulse of the humours urging behind, and which bursting forth upon the surface of the skin are collected in drops. For when the matter of the disease being dissolved, and moved freely through the pervious vessels, is expelled from the body in a sweat, such a sweat never gathers in drops, but equally escapes from the whole skin in the form of a moist vapour, or being collected together it trickles down in the form of a liquor. Hence Hippocrates<sup>b</sup> calls those good sweats which distil in drops, and exhale a vapour. But on the contrary he observes<sup>c</sup>, *Pessimus esse, qui sunt frigidi, & qui circa caput tantum & faciem & cervicem oriuntur. Isti enim cum febre acuta quidem mortem, cum mitiori vero morbi longitudinem prænunciant.* ‘ That those sweats are the worst which are cold, and appear only about the head, face and neck. For such presage death in an acute fever, and in a milder fever they denote a long continuance of it.’ But he equally condemns those sweats which come forth

M 4

and

<sup>b</sup> In Prognosticis, Charter. Tom. VIII. pag. 709.

<sup>c</sup> Ibidem.

are collected together upon the skin like millet seed; as also those which break out upon the neck only. Hence also in another place <sup>d</sup> he observes, that those which are a bad presage in an ardent fever, never appear throughout the whole body, but only in little sweats about the forehead, and about the clavicles. It is therefore evident, what a bad sign is afforded from a redness of the face beset with drops of sweat in an ardent fever; for it denotes an inflammatory thickness and imperviousness of the blood, and that it is either forced into other improper vessels, or else hesitates about the smallest extremities of the sanguiferous arteries, and that a very small portion of it can as yet be expressed; as also that death being now at hand, the extremities of the small exhaling vessels in the skin are so relaxed, as to transmit a thick and gross sweat. This has been well remarked by Hippocrates <sup>e</sup>, when he says, *Cæterum universalem sudorum rationem novisse oportet. Alii enim fiunt ob corporum resolutionem, alii vero ob phlegmones vehementiam.* ‘Moreover, the general cause or  
‘reason of sweats ought to be known. For some  
‘arise from a relaxation of the parts of the body,  
‘and others from the violence of inflammation.’ But what sweats are good or bad in fevers, has been said more at large in the comment to §. 594, N° 2.

A swelling under the ear, not coming to supuration, is destructive.] What a parotis or swelling under the ear is, was said before in the comment to §. 416, where it was observed from Celsus <sup>f</sup>, that sometimes parotids arise when the person

<sup>d</sup> Epidem. Lib. I. Charter. Tom. IX. pag. 70.

<sup>e</sup> In Prognosticis, Charter. Tom. VIII. pag. 609.

<sup>f</sup> Lib. VI. cap. 16. pag. 391, 392.



on is in health, and in that case repelling medicines may be used ; but when they arise from an ill state of health, he condemns the use of discutient or repelling medicines, and observes it to be more commodious to bring them to maturation, and to open them as soon as possible. But parotids were before numbered among those ways of terminating a fever, §. 593, whereby it tends to another disease, while the critical matter is not expelled out of, but deposited upon some part of the body ; therefore when parotids arise in an ardent fever, it is a sign that the febrile matter is critically deposited towards the glands there seated ; and as the blood in this fever is deprived of its more fluid parts, and at the same time has acquired a greater acrimony, therefore a mild resolution of these parotids cannot be expected, inasmuch as to effect that requires a mild state of the humours, a sedate motion of them, and the obstructing matter to be not over compact, as we observed at §. 386 ; therefore a suppuration only can take place here, which if it is not procured, a worse manner of terminating the inflammation must be expected. But sometimes the swelled parotids suddenly disappear from the morbid matter returning again into the blood, whence the very worst returns, and even death itself may be expected to follow in ardent fevers : for, as we said before under the present aphorism from Hippocrates, critical signs not terminating the disease, are in some measure fatal, but in part render the termination of the disease difficult ; for they denote that the efforts of nature have been exerted to no purpose, which is always esteemed one of the worst signs, unless considerable abscesses of the like kind immediately appear in other parts of the body, or unless the matter of the disease is thrown off by other critical evacu-

evacuations, as Hippocrates well observes in his Coan prognostics<sup>s</sup>, where he has the following passage: *Parotides ex acutis morbis, maximè in febribus ardentibus, fiunt: Et si non judicationem fecerint Et maturescant, aut ex naribus sanguis fluxerit, aut urinae sedimentum crassum habuerint, pereunt. Plerique vero talium tumorum antea subsidunt. Verum considerare oportet insuper etiam ipsas febris, sive intendantur, sive remittant, atque sic pronunciare.*

Parotids arise in acute diseases, and chiefly in ardent fevers; but unless they come to maturity, and procure a crisis, or unless blood flows from the nose, or the urine has a thick sediment, the patients do not recover. But for the most part such tumours subside before they prove fatal. But it ought likewise to be considered, whether the fever itself is thereby increased or diminished, according to which the physician is to give his opinion.<sup>a</sup> For thus is limited that presage, which in another place<sup>b</sup> is laid down too absolute: *Ex febre ardente, abscessu circa aures non suppurato, raro servantur.* That if abscesses about the ears do not come to suppuration in an ardent fever, the patient seldom recovers.<sup>c</sup> For if the morbid matter escapes by other ways, there may be hopes of a recovery. Hence likewise it is a very just admonition of Hippocrates, to consider at the same time whether the fever is abated or increased; for if the fever suddenly increases when the parotids disappear, we know that the febrile matter mixing again with the blood, produces those disturbances; and that therefore a bad termination of the disease is to be feared. But if no such increase of the fever happens, there is reason to hope that

<sup>s</sup> N° 208. Charter. Tom. VIII. pag. 863.

<sup>b</sup> N° 139. *ibid.* pag. 859.



the matter will in a little time escape by other passages, or be deposited upon some other part. And hence Hippocrates very justly pronounces in another place<sup>i</sup>, that those parotids are to be condemned, which gradually disperse without critically terminating the disease. Sometimes it also happens that the parotids disappear, and soon after the fever either returns or is increased, whence again the parotids swell out, and continue a second time<sup>k</sup>. But oftener when the parotids disappear, the matter of the disease is deposited upon some other part, or else is evacuated from the body if the patient is to recover. Accordingly Hippocrates<sup>l</sup> remarks, that upon the disappearing of the parotids, the patient was afflicted with an uneasiness about the left hip and ilium; and the patient slowly recovered, namely, on the fortieth day. And a little after<sup>m</sup> he has the following passage: *Quibus tumores circa aures in febris cum dolore attolluntur, quibusdam citice cessante febre, neque subsidebant, neque suppurabantur; illis orta diarrhœa biliosa, aut dysenteria, aut crassarum urinarum sedimentum solvit, velut Hermippo Clazomenio;* ‘in those who have a swelling about the ears with pain in fevers, the fever has sometimes gone off critically without those tumours subsiding or coming to suppuration; and in such a bilious diarrhœa or dysentery; or a thick sediment in the urine, terminates the disease, as in Hermippus Clazomenius;’ whose history Hippocrates gives us in the same book<sup>n</sup>. In this patient the parotids

which

<sup>i</sup> Prorrhēt. Lib. I. in fine. Charter. Tom. VIII. pag. 808.

<sup>k</sup> Hippocrat. de Humoribus in fine libri. Charter. Tom. VIII. pag. 581. & Epidem. Lib. VI. Charter. Tom. IX. pag. 474.

<sup>l</sup> Epidem. I. Charter. Tom. IX. pag. 67.

<sup>m</sup> Ibid. pag. 75.

<sup>n</sup> Ibid. pag. 112.

which arose on the seventeenth day of the disease indeed continued without coming to suppuration but they afterwards subsided on the thirty-first day of the disease, by a flux from the bowels and thick urines. From all which it is evident, that parotids in ardent fevers not coming to suppuration are destructive, unless during their continuance without suppurating, or while they are subsiding, a crisis is made other ways, either by an efflux or a deposition upon other parts; and then in such a case the patient has no critical termination of the disease, till after a considerable time.

Sometimes it was also no uncommon thing for parotids to disappear without coming to suppuration in certain ardent fevers, which spread epidemically: and Fœsius<sup>o</sup> remarks, that this happened without danger, when evacuations were procured by sweats or a flux from the bowels.

Nor yet must we believe health to be always an infallible consequence of parotids coming to suppuration in ardent fevers; for those crises which are made by abscess or deposition, are always less safe. Thus Hippocrates remarks<sup>p</sup>, that the parotids came to suppuration in two patients, and yet they perished. The truth of which is also confirmed afterwards by the observations of a physician of great name<sup>q</sup>.

But when parotids arise in people otherwise in health, and without a preceding fever, as I have frequently observed, there is no danger in these though they do not come to suppuration, but disappear

<sup>o</sup> In Commentariis in Coacas. Hippocrat. oper. Tom. I. pag. 137.

<sup>p</sup> Epidemic. 1. Charter. Tom. IX. pag. 78.

<sup>q</sup> Holler. & Jacotii Commentaria in Coac. Hippoc. pag. 209.



appear again; which Hippocrates<sup>h</sup> observes to have happened in an epidemical fever of a certain constitution; but then as he justly observes, those humours are lax, large, and spread abroad without inflammation, and are free from pain; and in the cure of these Celsus pronounces the use of discutient or repelling medicines to be safe. But on the contrary, parotids arising in an ardent fever, are usually less, harder, and attended with pain.

Too great a flux from the bowels is also fatal.] We have already seen before that a critical flux from the bowels sometimes cures an ardent fever; but we here treat of that flux which is rather to be esteemed symptomatic and profuse, or colliquative. A constipation of the bowels in these diseases is never of service: for since the bile rendered more acrid or corrupt, kindles these fevers, as we have already observed; and since even healthy bile is soon corrupted by a great heat, it must be evidently more useful for these foul humours to be discharged from the first passages, since otherwise by the free access of air with heat and stagnation, they may degenerate into the most malignant putrefaction in a very short time. Hence also it is, that clysters are so useful in ardent fevers, not only inasmuch as they dilute, relax and cool, but also as they wash out every thing putrid lodged in the intestines. It is therefore no bad sign for the bowels to be looser than ordinary in an ardent fever; so far from it, that Hippocrates<sup>i</sup> remarks, ardent fevers seldom happen to those who have loose bowels; and he observes, that the bowels were constipated in those who were afflicted with the most mischievous symptoms from an ardent fever.

<sup>h</sup> Lib. I. Epidem. Charter. Tom. IX. pag. 19.

<sup>i</sup> De Aëre locis & aquis. Charter. Tom. VI. pag. 190.

fever<sup>k</sup>. But when a great quantity of humours escape by stool, and especially before there are any apparent signs of concoction, Hippocrates pronounces a diarrhoea to be fatal (as we have several times observed before §. 316, 590, 720;) but in this case, what is discharged by stool smells intolerably foetid, whence there may be reason to fear a putrid dissolution of the humours, and that the patient's strength may be overpowered by the great quantity of juices thus exhausted from the body; and therefore such a flux from the bowels is mischievous both as a cause and as a sign.

When the fever with a trembling turns to a delirium, it oftens ends in death.] When we treated of a febrile trembling at §. 627, it appeared; that an imperviousness of the fluid to be moved thro' the arteries of the encephalon, is frequently the cause of tremors in diseases. But since the most fluid parts of the blood are dissipated in an ardent fever, and the rest are torrefied or thickened by a great heat, the reason is evident why tremors happen in an ardent fever. But if the trembling is followed with a delirium, we know that from the same cause the whole common sensory is disturbed, and consequently that there is the greatest danger of death.

We are told indeed by Hippocrates<sup>l</sup>, that tremblings arising in an ardent fever, remove a delirium; but Galen<sup>m</sup> remarks in his commentaries to this place, that the term remove, is improperly used here, since it generally signifies the cure of a disease: but in the present case it only denotes

<sup>k</sup> Epidem. Lib. I. Charter. Tom. IX. pag. 70.

<sup>l</sup> Coac. Prænot. N<sup>o</sup> 133. Charter. Tom. VIII. pag. 859.

& Aphor. 26. Sect. VI. Charter. Tom. IX. pag. 262.

<sup>m</sup> Ibidem.



tes a transition or remove of the disease from a bad state to a worse. It is indeed true, that a delirium following frequently removes the tremors, more especially if it is of the raving kind; for even such patients are frequently possessed of an immense strength in their muscles; but then this is apparently always of unhappy import.

Or turns to a peripneumony often with a delirium.] That an ardent fever often turns to a peripneumony, was said before in the comment § 739; the reason of which is evident from what was said above, as also why a delirium frequently attends. But when both these attend in an ardent fever, there is no room to doubt but the patient is in the greatest danger: even Hippocrates<sup>n</sup> pronounces the concurrence of these two together to be fatal, when he says, *Quibuscunque febre non intermittente spirandi difficultas fit, & delirium, lethale.* 'Whenever a difficulty of breathing and a delirium attend in a fever which is not intermitting, they afford a fatal sign.'

This kind of fever is the worst which arises after severe gripings of the bowels.] For this denotes that the intestines and mesentery are invaded with an inflammation: but an ardent fever with such an inflammation is dangerous in the highest degree, lest it should in a little time cause gangrene in these parts. But how suddenly an inflammation here seated may turn to a gangrene, was said before in the history of wounds of the abdomen; and we shall hereafter treat of this affair more particularly, when we come to consider an inflammation of the bowels. Hence the reason is evident why Hippocrates<sup>o</sup> condemns violent

<sup>n</sup> Aphor. 50. Sect. IV. Charter. Tom. IX, pag. 167.

<sup>o</sup> Aphor. 66. Sect. IV, ibid. pag. 177.

lent pains about the viscera in acute fevers as back  
and in another place <sup>p</sup> he says, *Et alvi dolore laborioso febris ardens perniciofa.* ‘ That an ardent  
fever in a person who has a pain and disorder  
of the bowels, is pernicious.’

But it sometimes goes off critically with a rigor  
or cold shivering.] A rigor is said to attend  
when the whole body is shook with a sense of  
coldness at the same time; and if this is slight and  
momentaneous, it is called a shake or shiver, (see  
§. 563.) It is also termed a horror, because  
like concussion of the body arises from the sight  
or remembrance of any thing very horrid or fright-  
ful. Hence Galen <sup>q</sup> says, that they do not seem  
to be very wide in their notions of this disorder  
who make a rigor a sense of coldness; for a sense  
of coldness is not always attended with real cold.  
*Quæ enim resoluta sunt, torpida, difficili aut nulli  
prorsus sensu prædita, omnia perfrixerunt, &c. Sed  
nullum ex his frigiditatem, quæ in ipso est, sentiunt  
unde neque riget; sin autem sentiat, protinus & ri-  
gebit.* ‘ For those parts which have a palsy are  
torpid, and either difficultly or not at all ex-  
perience any sensation, are all cold, &c. But none of  
these patients feel the cold which is in them-  
selves, and therefore they have no rigor; but  
the coldness is no sooner perceived than the  
patient will be immediately taken with a cold  
shivering.’

Hippocrates <sup>r</sup> has long ago observed, that a  
supervening rigor removes an ardent fever. For  
in an ardent fever (as we shall soon declare in the  
aphorism

<sup>p</sup> In Coac. Prænot. N° 131. Charter. Tom. VIII. pag. 859.

<sup>q</sup> De Tremore, cap. 6 Charter. Tom. VII. pag. 208.

<sup>r</sup> In Coac. Prænot. N° 136. Charter. Tom. VIII. pag. 859. & Aphor. 58. Sect. IV. ibid. Tom. IX. pag. 171.



aphorism next following) the blood being deprived of its more fluid parts, begins to hesitate about the extremities of the arteries, and makes an inflammation almost throughout the whole body. Thus the free course of the blood being impeded into the veins, these latter will empty themselves and pour almost all their blood into the system of the arteries, whence will arise the greatest resistance to the blood impelled from the heart into the arteries; thence a violent attrition, and consequently an intense heat follows. But when this inflammatory viscosity of the blood begins to be dissolved by the use of diluent and attenuating medicines, so as to dispose that fluid to pass freely through the ultimate extremities of the arteries into the veins, these obstructions are removed, and the blood finds a ready passage into the empty veins. In one moment therefore will be removed that great resistance which was before in the arteries, and therefore the attrition which was before violent, will be now little or nothing: thus therefore the heat is immediately and suddenly lessened, as the blood impelled into the empty veins is moved forward towards the heart, almost without any mutual attrition of its parts against each other. But even afterwards the blood received from the veins by the heart, is freely propelled thro' the pervious arteries, whence it meets with a much less attrition. If now it be considered, that during the whole course of the disease the mass of the fluids to be removed is much lessened, since fat people sometimes lose half their weight, and are pale and thin in their recovery from this dangerous disease, it is again evident, why such a sudden coldness arises from the restitution of the free course of the blood through the arteries. But a sudden sense of cold after intense heat, is fol-

lowed with a concussion of the whole body, that is to say, a rigor, as those experience who, coming out of the warm bath, expose themselves to the cold air.

From hence it is evident, what this rigor is, which sometimes critically terminates an ardent fever; for it is not every rigor that is good which happens in this fever, but only that which proceeds from a sudden restitution of the equable motion of the humours through the vessels. For when a new accession of the fever happens, either upon even or uneven days, then also a rigor attends, but much slighter than that which is critical. Moreover, we distinguish that salutary rigor from others, by its happening after the signs of concoction, and on a critical day, and from its being preceded or soon after followed with critical evacuations. Thus when a profuse hæmorrhage happens from the nose in an ardent fever, it is frequently followed with such a critical rigor, which alarms the patient and by-standers with vain fears of death at hand, when at the same time it paves the way to health. For by so great an evacuation of the arteries, the pressure of them against the obstructed extremities is so much lessened, that a resolution of the inflammation succeeds, by a retropulsion of the obstructing particles (see §. 400, N° 1.) But that the time when a rigor happens in an ardent fever, ought to be carefully observed, in order to form from thence a just prognosis, is evident from Hippocrates<sup>s</sup>; when he observes, that rigors happening on the sixth day in fevers, render the crisis doubtful or difficult. But this is in common to a rigor with all

<sup>s</sup> Coac. Prænot. N° 15. Charter. Tom. VIII. pag. 854. & Aphor. 29. Sect. IV. ibid. Tom. IX. pag. 150.



other crises, as is evident from what was said under the present aphorism concerning critical days. For it then appeared, that the sixth day was always suspected by the ancient physicians, because the most part bad, or at least unfaithful crises set out upon that day. But that a rigor may proceed from bad causes is evident; for when the blood being rendered impervious, cannot be propelled to the extreme parts of the body, it produces a rigor, which is next followed with a coldness of the extreme parts, which is a very bad sign in an ardent fever. Such rigors are condemned by Hippocrates<sup>t</sup>, when he says, *Ex rigore frigerationes, non recalescentes, malæ*. ‘A coldness of the parts not recovering their warmth from a rigor, is of bad import.’ But the free motion of the humours through the vessels being restored after a critical rigor, is in a little time followed with an equable heat diffused throughout the body. Thus in the woman who lay ill in the Andæan market-place<sup>u</sup>, there were frequent rigors, but such as were rather attended with an increase of all the symptoms, or a coldness of the extremities, no more recovering their warmth, and therefore the patient expired.

But although such a critical rigor denotes the matter of the disease to be dissolved and rendered moveable in an ardent fever, yet that matter seldom or never is so conditioned as to be assimilated to healthy humours, so as to flow with them through the vessels without any notable disturbance of the functions. For the humours are too much changed by so violent a disease; and hence the morbid matter when resolved, commonly re-

N 2

tains

Prorrhetic. Lib. I. Charter. Tom. VIII. pag. 744.  
Epidem. 3. ægrot. 12. Charter. Tom. IX. pag. 252.

tains some ill quality repugnant to an equal circulation ; and therefore a critical evacuation almost constantly follows after such a rigor : therefore it follows, that an ardent fever goes off indeed with a rigor, but is seldom or never cured by the rigor only. Thus a rigor happened on the eighth day to Cleonactides<sup>w</sup> ; but then on the same day happened a copious sweat, and the urine containing a red uniform sediment, completed the crisis.

## S E C T. DCCXLII.

**T**H E S E particulars being explained it will not be difficult to know the kind of fever when present ; nor will there be any room for doubt or obscurity, with respect to its more near and proximate cause for it arises from the blood being deprived of its more fluid or mild parts, joined with an inflammation throughout the whole body with a great strength of the vital powers in the patient ; but moreover, a pretty sure presage of the future events, may be also derived from the same principles.

From what has been said at §. 738, and 739 it plainly appears what kind of fever is to be called ardent, and wherein it differs from other fevers. For it differs from a putrid synochus or continued, inasmuch as its course is not one continued strain from the beginning to the end, but it is attended with remarkable fits of remission and exacerbation.

<sup>w</sup> Epidem. Lib. I. ægrot. 6. Charter. Tom. IX. pag. 108.



exacerbation. But it is distinguished from inter-  
 mitting fevers, in that the force of the fever does  
 not perfectly cease for a time. But it differs from  
 the slighter continual remitting fevers, chiefly by  
 the intense heat which is greatest about the vital  
 viscera, and more remits towards the extreme parts,  
 attended with unextinguishable thirst, and a dri-  
 ness of the whole body: however, it belongs to  
 the same general head with these last, and differs  
 from them only in the greater number, violence,  
 and malignity of its symptoms.

But that the proximate cause is such as is de-  
 scribed in the text, may appear from considering  
 the remote preceding causes, and the preceding  
 symptoms which are observed to attend in an ar-  
 dent fever. For that too much labour, with the  
 heat of the sun, and the other causes before enu-  
 merated at §. 740, dissipate the most fluid and  
 mild parts of the blood, namely, the watery, no  
 one can doubt; and at the same time it is equally  
 evident, that what remains being deprived of its  
 fluent watery parts, will acquire a greater acri-  
 mony and a disposition to an inflammatory tena-  
 city; from whence alone or increased by the use  
 of acrid heating aromatics, and sometimes by the  
 concurrence of an epidemic stimulus, the quickness  
 of the circulation is increased, and by that means  
 violent fever is kindled. But all this is like-  
 wise taught from the principal symptoms before  
 enumerated at §. 739, more especially the burn-  
 ing heat, difficult respiration, dryness of the whole  
 body, unextinguishable thirst, and a disturbance  
 of most of all the functions.

But since an ardent fever is so dangerous a dis-  
 ease, it is more especially incumbent on the phy-  
 sician to form a just presage, from whence it  
 may appear what is to be feared or hoped for in

the disease. For the physician will perfectly cure himself from all blame\*, if he foresees and predicts which patients will recover, and which not; and therefore Hippocrates, in a particular manner, advises physicians to apply themselves close to the study of prognostics. He indeed acknowledges it is better to cure diseases, than to foreknow them which are about to happen; but to cure all patients is not in the power of a single one, and the physician who is able to foresee the future accidents in diseases, will be also better able to preserve such as are capable of being cured.

But from all that has been already said concerning the causes, symptoms, and progress of ardent fever, a very firm prognosis may be derived. That this fever is attended with danger is universally acknowledged by all, but the different degrees of the danger we learn from the number and violence of the symptoms. We easily foresee the injuries about to be offered to the function of the brain, as we know that the blood being impervious, and impelled with great rapidity to that part, will dilate and enter the orifices of the smaller vessels, whence an obstruction, inflammation, and an exclusion of the thinnest and most moveable parts of the blood; and therefore the secretion of the spirits, and the free course of them through the substance of the encephalon and nerves will be impeded; and from hence a delirium, coma, convulsions, and the like, so frequently attend an ardent fever. The most intense heat about the vital organs, and the very rapid motion of the thick blood, and great dryness, denote the lungs to be in danger, lest by the rupture

\* Hippocrat. Prognostic. in initio. Charter. Tom. VII. pag. 584, 585.



ure of some vessels a fatal spitting of blood may ensue, or by the impervious blood impacted into the pulmonary vessels, the ardent fever may turn to a fatal peripneumony. But by what means nature aims at the cure of this disease, and by what passages she endeavours to extricate the morbid matter; at what time of the disease the discharge of it may be safely and certainly effected, and by what signs these efforts of nature may be foreseen; and lastly, in what manner we may know whether the future exit thereof will be salutary or fatal, each of these particulars have been already delivered. It therefore appears, that every thing belonging to the prognosis, may be derived from what has been hitherto said.

Some are indeed offended, that we should say an inflammation attends throughout the whole body in an ardent fever, because they believe that then the circulation must cease, as none of the vessels would be pervious. But as it appears from what was said under the heads of obstruction and inflammation, an inflammation may arise, when the orifices of the smaller vessels being dilated, admit larger globules of the blood, than are capable of passing through their extremities, which we then called an error of place, and which may arise only from an excess in the circulatory motion, as we demonstrated at §. 100. Hence an inflammation may arise throughout the whole body, altho' the blood continues to flow thro' the greatest number, if not through all the sanguiferous arteries. But that such an inflammation attends in an ardent fever, we are taught from a redness of the face, and frequently of the whole skin, which sometimes continues even after death. The inspection of bodies dying of this fever, demonstrates the cortical substance of the brain, (in which

naturally there is no red blood to be found) to appear in this case all over red, as if it was filled by art with some injection. Also from hence appears the reason why such a great heat attends even though such a great number of the smaller vessels are rendered impervious : for the red blood thickened by the loss of its most fluid parts, continues to be moved with a great velocity in the larger sanguiferous arteries ; and that the most intense heat must arise from these causes, was demonstrated before, where we treated of heat in fevers.

## S E C T. DCCXLIII.

**T**HE cure of this fever requires a pure cool air to be frequently renewed ; for the bed-clothes to be not in the least oppressing or over-loading to the body, either by their heat or weight ; for the patient to sit often in an erect posture ; for the drink to be plentiful, mild, obtunding, subacid, watery, and drank warm ; the food or nourishment should be light and farinaceous, made up from barley, oats, and subacid fruits ; bleeding is required in the beginning of the disease from the appearance of a plethora, and the signs of a particular inflammation ; to which add an intolerable heat, too great a rarefaction, a necessary revulsion, and urgent symptoms, not easily to be subdued by any other remedy, all which call for the use of the lancet ; the use of mild, diluent, relaxing, antiphlogistic, and cooling clysters must be often repeated, according as  
may



may be found necessary from the violence of the heat, driness of the bowels, or the necessity of making a revulsion: the whole body is to be moistened by the breathing a temperate air, replenished with the vapours of warm water through the nose, by washing the mouth and throat, bathing the hands and feet in water just warm, by fomenting with sponges dipped in warm water, and applied to parts where the greatest number of vessels is most exposed to their contact; the use of mild watery medicines of a sharp agreeable taste, with nitre, and such things as gently loosen the bowels, supplying matter for the urine, and affording a vehicle for the sweat, but without any great acrimony; and relaxing the contracted fibres, and resolving inspissated humours, particularly diluting and moderating the acrimony of the latter.

From what has been hitherto said, it appears that a most intense heat attends in an ardent fever, dissipating the most fluid parts of the humours, and inspissating the rest, causing a driness of the whole body, and a degeneration of the humours into a putrid state; it is from thence evident, that the cure requires the too great heat to be moderated, the dissipated fluids to be restored, and such of them to be dissolved and attenuated, as incline to concretion, to moisten the whole body, and to make use of such things as greatly resist all putrefaction. Hence the cure requires

[A pure cool air to be frequently renewed.]  
There is sometimes so great a heat observed about the vital viscera in an ardent fever, that the inspired

spired air is in a manner burnt up, as we observed before at §. 739. And from so great a heat there is danger lest the blood should be coagulated, so as to hesitate or stagnate in the smallest pulmonary arteries, whence frequently an ardent fever suddenly terminates in a fatal peripneumony; hence there is apparently a necessity for an agreeable coolness of the air to temperate this heat. But since in such patients there are continually a sort of putrid exhalations escaping from the body, so as to be offensive even to the people who attend upon those patients; therefore the air of the apartment in which they lie, will be in a little time filled and rendered foul with those vapours, which make a frequent renewal of it necessary; for unless that is done, the miserable patient is obliged to be continually breathing such infected air, to his great damage. See what has been said before in the comment to §. 698, concerning the pernicious consequences arising from the heat of the bed and confined air, in acute diseases.

For the bed-clothes not to be in the least suffocating and overloading to the body.] When we endeavour to secure the body from the winter's cold, we defend it well with clothes, so that by confining it in a bath of its own vapours we grow warm. If therefore the same thing takes place in an ardent fever, the very intense heat will be farther increased, and at the same time all those ill accidents will follow, which are known to arise in this disease from a confined air not renewed. Hence Celsus<sup>y</sup> orders in the cure of an ardent fever, (as we said at §. 698.) *Amplio conclavi teneatur æger, quo multum & purum aërem trahere possit; neque multis vestimentis strangulandus, sed admodum*

<sup>y</sup> Lib. III. cap. 7. pag. 134.



*admodum levibus tantum velandus est.* ‘ That the patient ought to be kept in a large chamber, where he may breathe much pure air; nor should he be suffocated with much clothes, but only to be covered over very lightly.’ The like helps are also made the principal in ardent fevers by Aetius<sup>z</sup>, when he says, *Decubitus sit in locis frigidis patentibus & aëre puro perflatis. Stratum molle & sæpe renovatum. Amicula assidue permutata, & satis gracilia, non sordida. Lectus sit abunde amplus, quo possint membra calefacta subinde ad alias atque alias partes transferri. Et per flabellum aër ignavior concitetur.* ‘ The patient should lie in cool open places pervaded by a pure air; the bed-clothes should be light and soft, and often renewed; the friends should be continually changing, and such only admitted as are very clean and not dirty. The bed should be very large, that the heated limbs may be transferred sometimes from one place to another, and the stagnant air should be put in motion by a fan.’ But afterwards physicians departed from these directions of the ancients, entertaining an ill opinion, that fevers ought to be cured by sweats even in the beginning, forced by the weight of bed-clothes and hot medicines. But how dangerous it is to attempt this method, unless the matter and cause of the disease are so thin and moveable, that they may be thus dissipated from the body, has been said before §. 594, N° 2. 716, &c. Nor is this error new in the cure of fevers; for Celsus complains of it in his time, by saying where he treats of promoting a sweat after the end, or at least after the decline of the fever; *Hujus autem rei causa continere æger sub veste satis multa manus debet, eademque*

<sup>z</sup> Tetrabibl. 2. Serm. 1. cap. 78. pag. 253.

*eademque crura, pedesque contegere: qua mole plerique ægros in ipso impetu febris, potissimeque ubi ardens ea est, male habent:* ‘ But for this purpose the patient ought to keep his arms under the bed-clothes, which should lie moderately thick; and with the same, the legs and feet should be also well covered: but from which weight of bed-clothes most patients in the height of their fever, more especially when it is of the ardent kind, find themselves greatly disordered <sup>a</sup>.’ It will be likewise of use to render the patients less hot, by laying them upon a couch or quilt rather than upon a feather-bed. But in what manner an agreeable coolness of the air may be procured, was said before at §. 605, N° 2.

For the patient to sit up often in an erect posture.] How much use it is of towards abating the too great violence of the fever, for the patient to sit up out of his bed, every day for a short time, with an erect posture in a chair, has been said before in the comment to §. 610. By the same means also a delirium or ravings may be either avoided or abated, if already present; because in an horizontal posture of the body the blood flows with a greater quantity and impetus towards the head. But Sydenham <sup>b</sup> confided so much in this method of relieving the patient, that in the small-pox when they seemed to be almost in the agonies of death, from the too great violence of the fever, that he placed all his hopes in this only; and he assures us, that by this means he delivered many from the jaws of death. Nor is there much danger to be feared, although the bodies of such patients are exposed not much covered to a moderately

<sup>a</sup> Cels. Lib. III. cap. 6. pag. 130.

<sup>b</sup> Sect. III. cap. 2. pag. 195.



ately cool air ; as he proves by a wonderful case. For a youth in the flower of his age lay ill of the small-pox in the midst of the summer, soon after the eruption of which he was taken with a phrenzy : but while the nurse who had the care of him was gone into the city, the patient was judged by those who were present to be dying, and after a while they laid out the supposed dead body upon a table covered only with a sheet. When the nurse returned, upon lifting up the sheet, she discovered some obscure signs of life, and therefore caused the body to be laid again into the bed ; and after some days the patient who had been laid out, perfectly recovered, though his body had been exposed naked to the air for so long a time.

For the drink to be plentiful, mild, obtunding, subacid, watery, and drank warm.] Namely, to restore the exhausted aqueous parts of the blood. Unextinguishable thirst which constantly attends an ardent fever, as long as the patient is not delirious, plainly calls for plenty of drink, as also does the great driness of the whole body. But since by the fever itself the humours tend to a greater acrimony, it is required at the same time for the drink to be mild and obtunding, and either acid or at least spontaneously inclined to acidity ; namely, to oppose the putrid degeneration of the humours, which is always much to be feared in an ardent fever. Hence decoctions of oats, barley, rice, &c. and emulsions prepared of these, and of the mealy seeds, with the acid juices of vegetables, crude or prepared by fermentation ; as vinegar, wine, &c. diluted with so much water, as to prevent them from doing any mischief by their stimulus ; the jellies or inspissated juices of the shops diluted in these decoctions, afford most pleasant and salutary drinks : and at the same time a great variety may  
be

be had in these, as the same drink does not please every one; and even in the same person afflicted with this fever at different times, it frequently happens that he has a greater desire for one kind of drink than another. This has been also remarked by Hippocrates<sup>c</sup>, who therefore enumerates the several kinds of drinks in an ardent fever, though all of them have the properties before described. Thus he recommends a decoction of linseed, mead, pure water itself; a decoction of barley either crude or roasted; which last makes a drink almost like the coffee of the Asiatics; wine diluted with water, &c.

But it has been disputed whether cold or hot drink is most useful in fevers, more especially as many passages in the ancient physicians teach us, that they greatly recommended cold drinks in an ardent fever, and that they endeavoured to extinguish by the cold the fiery heat of this disease. Thus Hippocrates<sup>d</sup> says, in treating of these drinks; *Multos autem edunt effectus: alii siquidem mictionem provocant, alii alvi dejectionem, alii utrumque, alii neutrum, sed tantum refrigerant, ut si quis in vas aquæ ferventis frigidam aquam infundat, aut vento frigido vas ipsum exponat*: ‘That they produce many or various effects, sometimes provoking urine, at other times exciting stools, and in others both or neither, but only a coolness, as if hot water was poured into a vessel of cold, or as if the vessel itself was exposed to cold:’ and he afterwards orders many of the cooling drinks to be given, which he before describes. Even Galen<sup>e</sup> acknowledges only two heads or intentions

<sup>c</sup> De Morbis, Lib. III. cap. ultimo. Charter. Tom. VII. pag. 594, 595.

<sup>d</sup> Ibidem.

<sup>e</sup> Comment. 4. in Hippocrat. de victu in morbis acutis, Charter. Tom. XI. pag. 124.



entions of cure ; namely, that the bilious humours  
ought to be extinguished or else perfectly evacu-  
ed. For the extinction of them he recommends  
cold drink, by which he says, he always was able  
to cure the ardent fever ; and observes that these  
fevers were so numerous, that he could not recol-  
lect the number of them. Thus Celsus<sup>f</sup> also ob-  
serves, that some physicians used the drinking of  
cold water till the patient was full, for the cure of  
ardent fever. But where there are the signs of  
present inflammation, or where there is danger  
of a future one, it is sufficiently evident what bad  
consequences are to be feared, if cold drink is  
taken into a body violently heated by a fever.  
See what has been said upon this subject in the  
comment to §. 640, N<sup>o</sup> 1. For there it appears,  
that Galen never absolutely made use of cold drink  
in this disease, but when the humours were already  
perfectly concocted ; and Celsus give many cau-  
tions, not rashly to attempt this remedy in every  
case. Even the ancient physicians seem to have  
feared something bad in this practice of giving  
cold drink, more especially if it was taken in large  
draughts. Thus when Hippocrates<sup>g</sup> recommends  
in mead, boiled away to the consumption of  
half, he orders it to be drank cold indeed, but by  
degrees or in small quantities. And Aetius<sup>h</sup> gives  
a whole chapter concerning the giving of cold  
water, where he enumerates the mischievous con-  
sequences of it which sometimes happen ; and de-  
livers the cautions to be observed in the use of it.  
He is unwilling that it should be given in the be-  
ginning

<sup>f</sup> Lib. III. cap. 7. pag. 135.

<sup>g</sup> De Morbis, Lib. III. cap. ultimo. Charter. Tom. VII.  
pag. 594.

<sup>h</sup> Tetrabibl. 2. Serm. 1. cap. 72. pag. 249. & in editione  
væca, pag. 84. versa.

ginning or increase of fevers; and observes, that it is then chiefly useful, when the humours being previously attenuated, the nature of the solid part is strengthened by the cold drink; and thus by a very just expression he explains himself, that cold drinks are only useful when there is a great tenuity of the humours. Moreover, the same author<sup>i</sup> in treating of an ardent fever, observes, that the continual use of cold epithems applied to the breast and stomach ought to be avoided; and that the application of warm epithems to the same part seems rather preferable. He sometimes orders cold water to be drank, to the quantity of a spoonful or two after meals; and rather chuses in the general to have the drink about as warm as milk from the cow, (for thus Fœsius<sup>k</sup> proves, that the term γαλακτώδες, like milk, ought to be translated.) Moreover, he observes again, that when the time occurs in which it may be proper to exhibit cold drinks in an ardent fever, the danger of the least disorder at hand may be a sufficient impediment to the use of it; and in that case he rather chuses to begin with the use of *aquæ fracta* as he calls it; that is to say, when one part of hot water is added to five of cold. Moreover, towards the end of the same chapter he observes, that some physicians ignorant of the method, in imitation of that practice by what he had already seen, had no success, but the events turned out fatal.

From all which I think it is evident, that the ancient physicians have not so absolutely recommended cold drink in ardent fevers, as some would have us believe; and at the same time it appears, when and under what cautions it may be useful. But

in

<sup>i</sup> Ibid. cap. 78. pag. 253. in edit. Græca, pag. 86.

<sup>k</sup> In Oeconomia, pag. 82.



In the mean time the giving warm drink can never be mischievous, as the vessels are that way more relaxed, and the fluids better diluted; nor is there any danger from a constriction of the solid parts, or a coagulation of the humours, both which are to be feared from an imprudent use of cold drink. Nor is it any objection, that coldness of the air is recommended in this fever; for the air being much rarer than water, instantly grows warm as soon as it is inspired; and even no prudent person will admit the freezing air of the winter-time to be applied to the body of a patient heated in an ardent fever, but they will only temperate the too great heat of the air by moderate coolness.

The food and nourishment should be light and farinaceous, made up from barley, oats, and sub-acid fruits.] Namely, the same things which were recommended for the drinks; and which differ only from having the denomination of food by a little greater strength or consistence. Hippocrates gave only his ptisan, or the juice of ptisan or cream in these fevers, thinner or stronger in proportion to the time and violence of the disease; as we see in his book, *de victu in morbis cutis*, and in several places of his works. See what has been said in the commentaries to §. 599, 600, 601, 602, where we took notice of every thing relating to the quality and quantity of the food, and of the time proper for it to be given in.

Bleeding is required in the beginning of the disease, &c.] What great use phlebotomy is of to diminish the too great violence of a fever, has been demonstrated before in the comment to §. 610, and therefore this evacuation seems always to be useful in an ardent fever, where a burning heat attends, and is usually accompanied with the most violent symptoms. But in the mean time great

caution is necessary in the use of it, since bleeding may be sometimes very prejudicial. For when the blood begins to be impervious, and hesitate in the smallest vessels of the vital viscera, there is indeed burning heat about the præcordia, but at the same time a coldness attends in the extremities; whence we know, that then only a small quantity of blood is propelled to the extremities, while almost the entire mass is collected in the arterial system. If therefore in such a case a vein is opened, the very little blood will be removed, which is able to pass from the arteries into the veins, and by which only at that time life is supported; and therefore there will be the greatest danger that blood-letting will rather occasion the death than the recovery of the patient. From hence it is evident why blood-letting is chiefly useful in the beginning of a disease before the thinnest parts have been dissipated, and while it still continues pervious thro' the vessels; and then by removing the grossest parts of the blood, it makes way for and procures a more easy and intimate mixture of the diluent and attenuating medicines, and happily prevents any future inflammation. If now the patient had a plethora before the fever, which may be known by the signs enumerated at §. 106. ε, there will be still a greater necessity for bleeding; and this more especially if at the same time the effects of the plethora are increased by a great rarefaction, produced by the heat of the fever. (See §. 106. δ.) But as the opening of a vein is the most efficacious remedy for the cure of an inflammation, as we affirmed in the history of that disease; it is sufficiently evident, that this evacuation is necessary, if there are the signs attending of a partial inflammation, more especially about the head or thorax, whence a fatal phrenzy or peripneumony might ensue in a little time.



time ; for unless such an inflammation is suddenly relieved, it will soon terminate in a gangrene : But since the too great velocity of the circulation may be lessened by bleeding from a vein (see §. 691.) and as it likewise lessens the density of the blood (See §. 692.) together, with the mass or weight of it to be moved (See §. 693.) all which are the most powerful causes of heat in fevers ; it is sufficiently evident from thence, that intolerable heat indicates the necessity of bleeding in an ardent fever. But as it is often necessary to divert the violence of the fever, as much as possible from the head, therefore on this account blood-letting may be performed in the foot to advantage. For when a vein is opened, the arteries which discharge themselves into that vessel will more easily evacuate their contained blood, and therefore there will be a less resistance made to the blood impelled into those arteries ; and thus a revulsion will be obtained from the superior part of the body. See what has been said upon such things, as make a revulsion of the impetus of the blood upon other parts at §. 396. N° 4.

From all which it is evident, that blood-letting in the beginning of ardent fevers is extremely useful, but that it is not always so useful in the rest of the progress of the disease, but only when the forementioned inflammation of the brain or lungs is threatened ; having always a regard to the patient's age, strength, and season of the year. But blood-letting is dangerous if the patient's strength is already depressed, and not from too great a fulness and rarefaction as the cause ; as also if the extremities continue cold a long time, as we observed before. Hence Hippocrates remarks ; *In acutis morbis venam secabis, si morbus vehemens appareat, & qui ægrotant in ætatis vigore fuerint,*

*Et robur ipsis adfuerit* : ‘ That one should open a  
 ‘ vein in acute diseases, if the disorder appears  
 ‘ violent, if the patient is in the vigour of his  
 ‘ age, and the strength at that time is also con-  
 ‘ siderable <sup>l</sup>.’ Almost the like is to be met with  
 in Celsus, when he says ; *Ergo vehemens febris,*  
*ubi rubet corpus, plenæque venæ tument, sanguinis*  
*detractionem requirit.* ‘ Blood-letting is therefore  
 ‘ required when the fever is violent, and the body  
 ‘ looks red, or the veins swell and appear full <sup>m</sup>.’

But that the use of venesection was not so uni-  
 versal among the ancient physicians for the cure of  
 an ardent fever, may be collected from hence ;  
 that Celsus <sup>n</sup> makes not any mention of it, where  
 he treats of the cure of an ardent fever. Nor does  
 Aëtius <sup>o</sup> mention it, although he recommends  
 bleeding in the cure of continual fevers, both  
 simple and putrid. In the same manner we like-  
 wise meet with nothing in Ægineta <sup>p</sup> concerning  
 the opening of a vein in the cure of an ardent  
 fever. But Aretæus <sup>q</sup> treating of the cure of a  
 syncope, the beginning of which he pronounced  
 an ardent fever, does then more especially recom-  
 mend venesection, *ubi præ multitudine syncopa fit,*  
*Et inflammatio aliqua insignis in præcordiis aut jaci-*  
*nore apparet* : ‘ when the syncope proceeds from  
 ‘ too great a quantity, and some considerable in-  
 ‘ flammation appears about the liver or præcordia.’  
 And soon after he subjoins, *multo minus sanguinis,*  
*quam in aliis occasionibus, evacuandum esse, quia vel*  
*minimus hic commissus error ad interitum ducit* :  
 ‘ that

<sup>l</sup> De victu Acutor. Charter. Tom. XI. pag. 127.

<sup>m</sup> Lib. II. cap. 10. pag. 78.

<sup>n</sup> Lib. III. cap. 7. pag. 134, &c.

<sup>o</sup> Tetrabibl. 2. Sermon. 1. cap. 78. pag. 253, &c.

<sup>p</sup> Lib. II. cap. 30.

<sup>q</sup> De curat. morb. acut. Lib. II. cap. 3. pag. 100.



‘ that much less blood ought to be evacuated  
 ‘ than upon other occasions, because the least  
 ‘ error committed in this respect may be of fatal  
 ‘ consequence.’

But if there are also certain signs persuading that venesection will be prejudicial, or at least dangerous ; and in the mean time there are urgent symptoms not easily to be subdued by any other remedy ; as for example, a pleuritic pain, or a violent burning heat in the head, a suffocating quinsy, &c. in that case the lancet may be used, but in the presence of the physician, that the vein may be closed as soon as that symptom is relieved ; being careful at the same time to pre-admonish the patient’s friends of the great danger which attends that remedy ; but that inevitable death is at hand, unless it be tried. Celsus<sup>r</sup> has a very just passage relating to this point, where he treats of venesection : *Fieri tamen potest, ut morbus quidem id desideret, corpus autem vix pati posse videatur : sed, si nullum tamen appareat aliud auxilium, periturusque sit, qui laborat, nisi temeraria quoque via fuerit ad-jutus, in hoc statu boni medici est ostendere, quam nulla spes sine sanguinis detractione sit : faterique, quantus in hac ipsa re metus sit : Et tum demum, si exigatur, sanguinem mittere. De quo dubitare in ejusmodi re non oportet : satius enim est anceps auxilium experiri quam nullum :* ‘ But it may so happen that the disease may require what the body seems but very  
 ‘ ill capable of supporting ; but if there appears no  
 ‘ other relief, but the patient must perish, who is  
 ‘ thus afflicted, unless assisted even by a rash method ; in that case, it is the part of a good physician to declare, that there are no hopes without

O 3

‘ blood-

‘ blood-letting, and at the same time for him to  
 ‘ confess how much danger there is in that re-  
 ‘ medy itself; and then at length if it is neces-  
 ‘ sary, he may proceed to the use of the lance.  
 ‘ But in an affair of this nature, the physician  
 ‘ ought not in the least to doubt or hesitate; for  
 ‘ it is better to try a doubtful remedy than none  
 ‘ at all.’

The use of mild clysters, &c.] For these are  
 of the greatest use, as the putrid fæces are thereby  
 washed out from the large intestines where they  
 are collected, all these parts are fomented, and  
 by that means a revulsion is made from the part  
 above. Besides this, the diluent antiphlogistic  
 liquors received into the bowels, by relaxing and  
 cleansing the small mouths of the meseraic veins  
 will be absorbed and mixed with the blood, which  
 will by this means be well diluted and attenuated.  
 But since clysters thrown into the bowels are im-  
 mediately received into the veins, and in part at  
 least, conveyed to the sinus of the vena portarum  
 and from thence propelled throughout the whole  
 substance of the liver, they may have a great in-  
 fluence in removing obstructions or inflammation  
 in the vessels of that viscus; inasmuch as the reme-  
 dies thus pass immediately into the parts affected  
 undergoing little or no alteration from the power  
 of the body. But on account of the great burn-  
 ing heat which is perceived about the præcordia  
 in an ardent fever, there is just reason to fear lest  
 the same disorder should take place in the liver.  
 But as the whole design here is to dilute and relax  
 these passages of the body, therefore the clysters  
 are made only such as are the most emollient  
 for if they were more acrid, they would be soon  
 followed with a tenesmus, and be thrown out  
 again from the body by stool. Water only with  
 oxymel



oxymel and nitre will suffice for this purpose; or the same things may be diluted in a decoction of mallows, mash-mallows, barley, oats, or the like. These ought to be applied three or four times in a day or oftener, and to be retained in the body as long as they conveniently can: but the use of them must be persisted in as long as any great heat or driness continues throughout the whole body. But when the tongue, fauces, eyes, and skin, begin to appear moist, and the violence of the fever with the heat abate, then they are to be laid aside, to avoid weakening the body too much, or to prevent the fever from being so dull, as might disenable it to subdue, move, and expel the morbid cause. See what has been said concerning the use of these in the comment to §. 610, where we treated of lessening the too great violence of the fever. We know that Hippocrates<sup>s</sup> relied greatly upon the use of clysters in acute diseases; for after saying in acute fevers, that a vein ought to be opened if the disease is violent, he adds, *At si imbecilliores appareant, ac si plus sanguinis detraxeris, clysmo alvino tertio quoque die utendum, donec in tuto æger fuerit.* ‘ But if the powers appear weak, or if you have taken away too great a quantity of blood, a clyster ought to be thrown into the intestines every third day only, until the patient is out of danger.’ From whence it is evident, that Hippocrates expected the same effects from clysters as from blood-letting; and that in the weaker patients, or such as had been reduced by large blood-letting, he used clysters only at long intervals. But of what use these are in deriving the impetus of the blood from the superior parts, and there-

O 4

fore

<sup>s</sup> De Victu acut. Charter. Tom. XI. pag. 129.

fore how serviceable they are when a delirium or phrenzy attend, or to prevent them when they are feared, we are informed by Celsus <sup>t</sup>, where he treats of clysters, saying, *Fereque eo modo dempta materia, superioribus partibus levatis, morbum ipsum molliat.* ' And almost in the same manner as the morbid matter is thus removed, the superior parts being relieved, the disease itself also abates.'

The whole body is to be moistened, &c.] For as we have observed before, those perish with dryness who die of an ardent fever: hence all the endeavours of art are to be used to remove the present, and prevent the future dryness. Therefore the internal parts of the body are to be moistened with plentiful drinking, and with emollient clysters, the lungs by breathing a moist air, the internal parts of the mouth, fauces and nose, by gargles and by drawing in the steams of warm water, whereby they are to be preserved from drought. But also the external surface of the body which frequently appears so dry and rough in ardent fevers ought frequently to be relieved: hence warm bathing of the feet, more especially if the vapours of the water are permitted to come to the lower parts of the body uncovered, is of the greatest use: the hands are to be frequently dipped or washed in water every day; sponges distended with warm water are to be frequently applied under the arm-pits, behind the ears, and in the groins, that the water applied in all these parts may enter the veins, mix with the blood rendered almost impervious from the loss of its fluid parts, and restore its diluent vehicle. At the same time also, by these means, the whole surface of the body is rendered

<sup>t</sup> Lib. II. cap. 12. pag. 86.



rendered very perspirable, so that by this way those humours may be expelled from the body, which being retained would have been mischievous. The ancient physicians took a great deal of pains in these particulars; for they strewed the floor with leaves of vines, myrtles, and roses, &c. and frequently sprinkled those leaves with water; they ordered the mouth to be frequently washed and gargled; they applied epithems to the breast and stomach, and linen cloths moistened with a mixture of warm oil and water, or else they suffered the mixture to drop down upon the breast, &c. \* for by all these means put in practice they mitigated the worst symptoms which usually attend an ardent fever; such as dryness of the tongue, unextinguishable thirst, intolerable anxiety, slight cough, shrillness of voice, &c. Nor was this all, for by the same means the internal and external parts of the body were disposed to make critical evacuations by those ways, which usually terminate an ardent fever. For a bleeding from the nose, which is so salutary in this fever, is best procured by softening and relaxing the membranes and vessels which line the internal parts of the nose by the vapours of the warm water; by relaxing the whole skin the body is very well disposed to critical sweats, the lungs softened and moistened will more easily evacuate the morbid matter by a thick spitting; those emunctories in the body which are placed behind the ears, in the arm-pits and groins, being continually relaxed with warm fomentations, will more easily admit the morbid matter to be deposited there by a critical translocation, &c. From whence it is evident,

\* Aëtii Tetrabibl. Lib. II. Serm. 1. cap. 78. pag. 253, 254.

dent, of how great use moistening of the whole body may be in the cure of an ardent fever.

The use of mild watery medicines with nitre &c.] The ancient physicians seem to have given themselves little concern about medicines; and no wonder, since what they administered under the title of food and drink, performed the office of medicines. Hence Hippocrates seems to have given hardly any thing but mead, oxycrate, or oxymele &c. and these he even gave to his patients for the common drink. Thus also there is little or no mention made of medicines in Celsus, Aëtius, and others. But if what has been said concerning food and drink proper for people in ardent fever be considered, it will evidently appear, that they have all the same qualities which are necessary in medicines. For they are all watery, mild, obdurate, and subacid: and the thing is the same whether a decoction of barley, oats, or the like mixed with the most pleasant acid juices or syrups be given under the title of a common drink, or under the denomination of a medicine. But both the patient and his friends would accuse the physician of negligence, if he neglected to order medicines from the shop of the apothecary in so violent a disease; it is therefore better to exhibit such things under the title of medicines, as answer the same intention, of which a great variety may be tried. For all the syrups and inspissated juices prepared from subacid fruits, diluted with distilled waters, wherein there is no hot spiciness; such for example, as those distilled from baum, elder flowers, and the like, dissolved in the decoction of vipers grass, of common grass, or of goat's beard, burdock, barley, oats, &c. used as a vehicle to the same juices, are extremely salutary and pleasant, both as drinks and medicines. The like



may be also prepared from cherries, strawberries, mulberries, raspberries, currants, &c. when they are fresh gathered in the summer time, lightly bruised, and infused in a scalding decoction of barley, or the like, and the strained liquor afterwards sweetened with sugar or honey. To these nitre is added, as being the lightest of salts, and the most easily changeable by the powers of the body, being one of the best resolvents of inflammatory thickness in the humours, while at the same time it does not too much increase the motion of the blood by a rigid stimulus, see §. 135. N°. If half a dram, or a whole one of this salt be diluted in each pound of these decoctions, it will suffice; for if given in a larger quantity, it may increase the motion of the humours, which is already too great, by its saline stimulus.

It is also proper to all these medicines to gently loosen the bowels, which is always of service to prevent the putrid fæces from staying too long in the intestines; and by the quantity of water with which they abound, they supply matter for the urine, and by that means procure an expulsion by the urinary passages of the saline and oily parts of the blood, rendered more acrimonious by the increased motion or velocity of the circulation. By the same means there is likewise a suitable or mild vehicle afforded to the sweat, by which discharge, as we have already seen, an ardent fever is frequently terminated; namely, when the humours being dissolved, and the vessels relaxed, the sweat appears at a due time of the disease. For those medicines are dangerous, under whatever title they are cried up, which being possessed of an acrid stimulus, are given to excite sweats, as we have often said and demonstrated before. Also moreover, by the quantity of warm water, especially charged

charged with the soft glutinous substances of barley, oats, or the like, the fibres contracted and rigid with drought are relaxed, the thickness of the humours is attenuated by the saponaceous juices and nitre ; while at the same time all acrimony is weakened, partly by diluting, and partly by the opposite nature of the drinks themselves the ingredients of which are all of them either acid or inclined to acidity ; and we know that in an ardent fever the humours incline to an alkaline, putrid, or an oily rancid acrimony. The great number of medicines suitable for these intentions, gives sufficient opportunity for one but moderately versed in the materia medica, to please the patient by an agreeable variety, adapted to the patient's fancy.

But since an ardent fever is frequently terminated by an hæmorrhage at the nose, as we observed before at §. 741, and as this has been sometimes observed so profuse as to put the patient in great danger, I therefore thought it not improper to add in this place, the means whereby an immoderate flux of blood from the nose may be suppressed ; but the other critical evacuations which happen in an ardent fever, by vomiting, sweat, urine, or thick spitting, are seldom so profuse as to put the patient in danger ; and besides, we have already treated of the manner how to suppress too profuse vomiting, purging or sweating, when we considered and treated of those among the symptoms of fevers ; and therefore it may suffice for us in this place, to speak only of suppressing an hæmorrhage from the nose.

The blood sometimes flows so impetuously from a rupture of the arteries in the nose, that in a little time several pounds have been discharged, inasmuch that as practical observations testify, there

has



been danger of fainting and convulsions from sudden and violent inanition. Galen in the wonderful case which we mentioned at §. 741, when the hæmorrhage which he had predicted had discharged four pounds and a half of blood, he is obliged to suppress it. But among those remedies which serve this intention, many have recommended venesection, namely, to call off the impetus of the blood. But how little confidence can be placed in this, was said before in the comment to 219; and at the same time there is danger left by opening a vein those disorders are increased, which are feared as the consequences of the too great diminution; namely, when phlebotomy is used after much blood has been already lost. But when blood flows from the nose of a young person in the spring or summer-time, and we are acquainted that they have already had two profuse hæmorrhages of the like kind before, venesection may then take place, in order to lessen the quantity and impetus of the blood. Of this nature seem to have been those cases, of which Galen<sup>u</sup> testifies he had relieved a great many instantly from a bleeding at the nose, by opening a vein. For in the last mentioned, he did not make use of it, but had recourse to other remedies. We read indeed in Hippocrates<sup>w</sup>, *Quæ ex naribus copiosa lenta multa fluxerint, ad convulsiones interdumducunt: venæ sectio solvit.* 'That venesection sometimes removes convulsions when they are brought on by a profuse and violent flux from the nose.' But Galen<sup>x</sup> rather chuses to have this

<sup>u</sup> De Curandi ratione per venæ sectionem, cap. 11. Charter. Tom. X. pag. 440.

<sup>w</sup> Proorrhæ. Lib. I. Charter. Tom. VIII. pag. 798.

<sup>x</sup> Ibidem.

this passage understood (as he tells us in his comment upon it) to mean that venesection is a cure when it is used before the hæmorrhage from the nose. Moreover, Hippocrates in his Coan prognostics <sup>y</sup>, expresses this opinion in a different manner, by saying, *Quæ ex naribus large (fluunt) suppressa, quandoque convulsionem provocant; venesectio solvit.* ‘ They who having a profuse flux from the nose suppressed by violence, being sometimes thrown into convulsions, are cured by venesection.’ For thus by venesection, that which was discharged which was retained by an unseasonable suppression; whereas in the former case, convulsions arising from too great inanition, would be rather increased by venesection. And hence Sydenham <sup>z</sup>, who recommends blood-letting to be useful to prevent or suppress an hæmorrhage from the nose in healthy people, has yet no good expectations from it, to suppress a critical hæmorrhage from the nose in fevers <sup>a</sup>.

For this purpose may conduce ligatures, applied to the limbs so as to compress the veins but not the arteries; since by this means the venal blood is prevented from returning in so great a quantity towards the heart; and thus much blood may be retained in the easily dilatable veins, and time may be given to the divided arteries to contract themselves by their own elastic force. Galen <sup>b</sup> recommends before other remedies, the application of large cupping-glasses to the hypochondria on the left side, when the blood flows from the right nostril.

<sup>y</sup> N<sup>o</sup> 336. *ibid.* pag. 870.

<sup>z</sup> Sect. VI. cap. 7. pag. 360.

<sup>a</sup> *Ibid.* Sect. I. cap. 4. pag. 86.

<sup>b</sup> De Prænotione ad Posthumum, cap. 13. Charter. Tom. VIII. pag. 851.



nostril, and on the left when the blood flows from the nose on the same side: for that after having tried in vain an erect posture of body, the drawing up of cold water mixed with vinegar by the nose, the application of cold sponges dipped in mead to the forehead, and the making ligatures upon the limbs, to moderate the too profuse hæmorrhage, he immediately relieved it by applying a cupping-glass to the right hypochondrium.

Sydenham<sup>c</sup> assures us, that he often successfully allayed the too great violence of the blood by anodynes; and then by giving a purge he prevented the return of the hæmorrhage after it was allayed; therefore when this symptom attended, he gave purges in fevers sooner than he otherwise used.

When the hæmorrhage has been so profuse, that the least delay has threatened danger, from the patient's body being already nearly exhausted, a very strong solution of vitriolum album has never yet failed me; namely, if a tent moistened in that liquor is introduced up the nose, taking care to thrust it up as far as possible. This may be done by some scraped lint dipped in a solution of the vitriol, and fastened round the end of a quill, upon which it is to be thrust up the nose, first perpendicularly for the length of about half an inch more or less, as if one endeavoured to thrust something from the nostrils into the fauces; but in the next place the quill is to be prudently raised directly upward, with the lint as high as possible without injury; and lastly, the nostrils being compressed the quill is to be gently extracted, leaving the scraped lint behind. Unless the experiment be conducted with this caution, the solution of the vitriol seldom penetrates to the  
affected

<sup>c</sup> In locis modo citatis.

affected part. But the tent is to be left in the nose, until after a day or two it falls out spontaneously. The like method is recommended by Hippocrates<sup>d</sup>, when he says, *Chalcitidem digitum prius efformatam apprime, & cartilagine utrimque foris comprime: alvumque lacte asinino cocto solve & caput radens refrigerantia admove, si anni tempestas fuerit calida.* ‘One must first apply a piece of white vitriol shaped like a finger, and compress the cartilages of the nose together on each side externally; and in the mean time to keep the bowels open with boiled asses milk, and after shaving the head, to apply cold things if the season of the year is hot.’

In the mean time care must be taken, not to suppress an hæmorrhage of the nose too early or unseasonably from an ill-grounded fear. As long as the pulse continues full, the heat extends to the extremities, and a red colour appears in the face and lips, there is no danger; but when the pulse begins to be unstable, a paleness appears in the countenance, and the veins collapse, we know that the flux of blood ought to be then suppressed. It frequently happens, that a sudden and profuse hæmorrhage from the nose is followed with a fainting, and then the hæmorrhage ceases; nature performing at that time what was imitated by art in the cure of acute fevers, when by blood-letting being put in practice till the patient faints, the fever is in a manner killed.

## S E C T.

<sup>d</sup> De Victu acutor, Charter. Tom. XI. pag. 182.



## S E C T. DCCXLIV.

For to all this one joins what has been said in the general rules for the cure of acute fevers and their symptoms, and likewise what will follow hereafter of acute cases tending to the destruction of some particular viscus, such a one will plainly perceive all the remedies that are necessary for the cure of any ardent fever.

We have already enumerated in the preceding aphorism, such things as are principally to be regarded in the cure of an ardent fever: but for the rest, they have been already given under the cure of fevers in general. For at what time of the disease aliments ought to be given, and what the quantity and strength of them ought to be, has been there explained at large: as also how the acrid irritating stimulus may be corrected or expelled, and by what remedies the lentor of the humours may be resolved; after what manner the matter of the disease may be best prepared for a concoction and crisis, and the ways lubricated, by which the matter of the disease being subdued and rendered moveable, may procure itself a passage out from the body; concerning all which we have treated at large. But the principal symptoms which attend fevers, with the signs by which they are usually distinguished from each other, and the various denominations whereby they are sometimes called, together with their history and cure, have been likewise treated of; and therefore nothing seems necessary to be added further. But since inflammatory diseases of the viscera frequently arise

VOL. VII. P from

from an ardent fever, which frequently require particular treatment in the cure of the fever itself and more especially a phrenzy or peripneumony therefore we ought to add what we shall hereafter deliver concerning acute diseases, as they produce a particular inflammation of this or that viscus.

## S E C T. DCCXLV.

**M**oreover, the remaining particular acute fevers, which do but rarely occur, may be understood from what has been hitherto said, or else they may be referred to some of the particular symptoms, or they may be considered as the effects of other acute diseases.

For in the first place we treated of those fevers which run through their whole course from the beginning to the end without any intermission called synochi, and distinguished into putrid and not putrid: but when such a fever terminates within the space of twenty-four hours, it was called an ephemera. It is therefore evident, that all continual fevers may be reduced to these three classes. But if an inflammation of some viscus attends at the same time, it then belongs to some of the inflammatory diseases, concerning which we shall treat hereafter. But as an ardent fever is the worst kind of those which have no intermission, but only remarkable fits of increase and remission; it is evident, that from the cure of this ardent fever may be understood what ought to be done in other fevers of the like kind, which are not accompanied with so many and so severe symptoms. Moreover, these continual remitting fevers frequently arise from the fits of intermittent protracted



protracted and doubled, one upon the back of the other; and when the violence of these fevers has been abated, they usually turn into true intermittents; and therefore what else relates to these fevers, may be taken from the history and cure of intermittents.

But the rest of the different kinds of fevers to be met with in authors, are usually taken from some troublesome symptom attending; but concerning these, we treated in the history of the symptoms of fevers. Thus the hiccuping fevers, sudatory, and such as are called afodes from a continual nausea and anxiety, and epiala from a continual rigor, exanthematous, &c. are so called from their symptoms. But then also the whole difference necessary in their cure from that of other fevers arises from the symptom, from whence they derive their name; but when a particular acute fever is accompanied with some inflammatory disease, or follows from that disease as the cause, as for example, when in a pleurisy coming to suppuration, a fever is kindled from the confined matter, it is evident enough, that the cure must depend upon a knowledge of that disease.

It is therefore evident, that nothing remains to complete the history and cure of fevers, than for us to add something concerning those fevers which are termed intermitting.

## Of Intermitting FEVERS.

## S E C T. DCCXLVI.

**T**HE definition of an intermitting fever has been given before §. 727, also the diagnosis of it is self-evident, and the distinction of it into various classes is easy, inasmuch as it depends only upon the different times of the attacks or invasions. But sometimes an exquisite septenary intermittent happens, as I have myself seen.

Those fevers which abate their violence at times, in such a manner that there is a perfect absence of the fever betwixt the two fits, are called intermittents, as we said before at §. 727, and therefore in this respect the diagnosis of them, whereby they are distinguished from all other fevers is very easy. But it is evident enough, that the diagnosis of this fever requires the physician to be acquainted by observation with the two fits and the intermediate time betwixt, before he can be certain of what kind it is. For it is much more difficult at the first invasion of the fit to determine whether it will be an intermittent, or of what kind, whether a quotidian, tertian, or quartan: upon this subject therefore we shall speak more particularly, after having first enumerated the different classes of intermitting fevers.

The difference of the time which intervenes betwixt each paroxysm, makes the different classes of these fevers. For if the fever returns every day with a perfect intermission or absence of the fever



ever betwixt the two fits, it is termed a quotidian. If the fever invades the first day, and leaves the patient perfectly free on the second, returning again on the third day, it is called a tertian; the calculation being made from the beginning of one fit to the beginning of the next\*. But if the second paroxysm falls out on the fourth day from the beginning of the disease, it is called a quartan; if on the fifth day, a quintan; and so of the rest betwixt whose paroxysms longer intervals have been observed. This ought more particularly to be remarked, because the common people, among us at least, often confound the names of these fevers, by calling a quartan a tertian, because they see the patient free from the fever for two days: and then on the day following, which they call the third, it returns again. For the same reason they call a tertian fever that which invades every other day. But it is customary with physicians, to estimate this and all other diseases from their first invasion: and hence the reason is evident, of these names which are usually given to intermitting fevers.

It is well known to every one, that quotidian, tertian, and quartan fevers frequently occur; but those intermittents which have a longer interval betwixt each paroxysm are very rare. Yet Hippocrates<sup>c</sup> mentions fevers returning on the fifth, seventh, and ninth day; and the celebrated author of these aphorisms, assures us in the present one, that he had seen an exquisite septenary intermittent. I had myself once an opportunity of seeing a quintan intermitting fever arise from a quartan:

P 3

but

\* Sydenham, Sect. I. cap. 5. pag. 96.

<sup>c</sup> Epidem. Lib. I. Charter. Tom. IX. pag. 86.

but after four fits this fever went off spontaneously. Schultzius<sup>f</sup> also observed, a fever returning every eighth day at the same hour, and with the same symptoms for five times successively; but the sixth time the fit which was the last, fell out upon the fifth day from the last paroxysm, anticipating the usual time of the exacerbation about three hours. But the same author remarks, that this fever terminated in health, partly by a sweat, and partly by a copious discharge of urine, almost without the use of medicines. But Amatus Lusitanus<sup>g</sup> saw a fever of this kind, of a much longer continuance in a Jewish youth, which continued from the beginning of the winter to the middle of the spring, and that with very evident fits lasting for near fifteen hours. But after the fit was over the patient found himself perfectly well. More such cases occur among the writers of observations; from whence it appears, that sometimes intermittent fevers of much longer periods are observed. But the longest interval that we read of betwixt two paroxysms, takes up the space of a whole year. *Antipater Sidonius Poëta omnibus annis uno die tantum natali corripiebatur febre, & ea consumptus est, satis longa senecta.* ‘Antipater the poet of Sydon, used to be taken with a fever only once in a year upon his birth-day, and thereby he was wasted, though he acquired an old age tolerably long<sup>h</sup>.’ Many such observations are collected together by Schenkius<sup>i</sup>. But these long intervals betwixt the paroxysms of intermittent fevers do not frequently happen, as we may col-

lect

<sup>f</sup> Miscell. Curios. ann. 4. & 5. pag. 58.

<sup>g</sup> Centur. septim. curat. 75. pag. 767.

<sup>h</sup> C. Plin. Secund. Lib. VII. cap. 51.

<sup>i</sup> Observat. Medic. Lib. VI. pag. 745, 746.



lect from hence, that Galen<sup>k</sup> testifies he never saw these long periods; and that he had only observed quintans, and even those obscure and doubtful. But Tulpus<sup>l</sup> saw a very distinct quintan fever, which continued returning reciprocally in due order for above eighteen months, without any manifest wasting of the body or loss of strength.

But as intermitting fevers differ from each other according to their fits or paroxysms, it is sufficiently evident, that this distinction must be obvious and easy to every one. But Galen<sup>m</sup> has more nearly confined or limited the diagnosis of these fevers, affirming that one might distinguish in the first fit of the approaching fever, to what class the intermittent belongs; he even ventures to say, *Tertianam quidem a quartana, qui primo statim die nescit distinguere, neque omnino medicus est.* ‘That one who knows not how to distinguish immediately a tertian from a quartan on the first day, is no physician.’

The signs of a quotidian fever are reckoned up by Galen<sup>n</sup> as follows; that in this the heat is more moist, and joined with a kind of acrimony, which is not immediately perceived as soon as the hand is applied, until it has continued some time; the thirst is less, and there is a discharge of phlegmatic humours by vomit and stool; the whole body abounds with crude humours; the patient’s

P 4

age,

<sup>k</sup> Comment. 3. in Lib. I Epidem. Charter. Tom. IX. pag. 87.

<sup>l</sup> Observat. Medic. Lib. III. cap. 52. pag. 269, 270.

<sup>m</sup> De Crisibus, Lib. II. cap. 4. Charter. Tom. VIII. pag.

413, 414.

<sup>n</sup> Method. Med. ad Glaucon. Lib. I. cap. 7. Charter. Tom. X. pag. 351. Et de Crisibus, Lib. II. cap. 5. Charter. Tom. VIII. pag. 414.

216 Intermittent FEVERS. Sect. 746.  
age, habit, season of the year, and state of the weather, are usually too moist. Moreover, in a quotidian fever there is never so great a heat perceived as in the height of the paroxysms of a tertian. A tertian fever he distinguishes<sup>o</sup> by its beginning with a more severe rigor or cold fit than a quotidian, with a kind of uneasy or painful sensation like a pricking; the pulse more nearly resembles the natural, but in a little time it increases both in strength and magnitude; great thirst attends, and there is a great heat, but equally diffused even to the extremities; this heat at first greatly affects the hand of the physician touching, but soon after the heat seems to be less than that of the hand: at length a sweat follows, or bilious humours are discharged by vomiting, or by stool, and the urine is also discharged bilious. This diagnosis is confirmed if the season of the year is hot, the patient's habit warm and bilious, and if labour, watchings, care, or fasting have preceded. But he tells us, that it is proper to quartans<sup>p</sup> in their invasions, to have the pulse as if it was tied up and drawn inward, as we said before upon another occasion at §. 576; nor is there that sense of pain or pricking attending in the cold fit of a quartan, as in that of a tertian; but the patient perceives as if all the soft parts were bruised even to the bones. This diagnosis will be still more confirmed and apparent, especially if these fevers rage violently, and spread epidemically about the time of autumn.

But although the forementioned signs are of great importance in the diagnosis of these fevers,

and

<sup>o</sup> Ibid. pag. 411.

<sup>p</sup> Ibidem.



and a skilful physician, more especially one well  
 versed by long experience in practice, may from  
 experience presage at what interval of time the fit will  
 turn again; yet in the mean time prudence di-  
 rects us to be cautious in this respect, lest being  
 sometimes mistaken, the physician might expose  
 both himself and the profession by a wrong pre-  
 sage. For it can be of no bad consequence to defer  
 the diagnosis, until the second paroxysm puts the  
 case out of doubt. But they who are the most  
 largely versed in practice, may easily foretel from  
 the known epidemical constitution, to what class  
 of intermittents the fever belongs, of which they  
 see the first fit.

Moreover, in intermitting fevers it is to be ob-  
 served, that the distinction is taken from the longer  
 or shorter duration of the fit itself. For when the  
 fit of a tertian terminates within the space of twelve  
 hours, Galen<sup>a</sup> calls it an exquisite tertian; but  
 when the fit exceeds twelve hours, and the time  
 of intermission is still longer than that, he calls it  
 simply a tertian, without the addition of any title.  
 But if the paroxysm runs out to so great a length,  
 as to exceed the interval or space of time, in which  
 the patient continues free from the fever, he then  
 calls it an extended or prolonged tertian. Nor  
 is this distinction useless, when certain presaging  
 signs concur, proper to an exquisite tertian only,  
 as will hereafter be made evident.

But when a new accession of the fever comes  
 on upon the intermediate day betwixt the two  
 paroxysms, it is then termed a duplicated or tri-  
 plicated intermitting fever, &c. because then in  
 reality

<sup>a</sup> Comment. 3. in Lib. I. Epidemicor. Charter. Tom. IX.  
 pag. 90, 91. & Comment. 2. in Lib. VI. Epidem. ibid. pag.  
 409, 410.

reality there are so many fevers in number, there are fits of accession following in order, attended with the usual symptoms, the same number and strength at the hour of invasion; and thus a double tertian or a triple quartan, is distinguished from a quotidian fever. For in a double tertian, the fit on the first day answers to that which will attend on the third; but the accession of the second day is like that which will happen on the fourth; and the like order is observed in a triplicate quartan. But the fits of a quotidian fever are very much like each other. But y<sup>e</sup> Celsus<sup>r</sup> seems to have neglected this distinction of a double tertian from a quotidian, as he numbers them together as varieties of quotidian fevers.

But it sometimes happens, though rarely, that this reduplication of the fever does not fall out upon the intermediate day: as for example, when two distinct fits happen instead of one on the third day of a simple tertian, the two fits following immediately after each other, and in the meantime the fever is perfectly absent upon the second and fourth day. If now in such a case a new attack of the fever invades upon the intermediate day, it may be a triplicate tertian, which Galen assures us he has plainly observed. But how much all the symptoms must appear disturbed when the fits of intermitting fevers are thus multiplied and anticipate the usual hour of their invasion as they often do, must be sufficiently evident to every one; and then they resemble the appearance of continual fevers, as we shall declare hereafter at §. 748.

## S E C T

\* Lib. III. cap. 3. pag. 116.

\* De crisi bus, Lib. II. cap. 9. Charter. Tom. VIII. pag. 411.



S E C T. DCCXLVII.

It must however be observed in general, that intermittent fevers are either vernal, invading from February to August; and autumnal, which prevail from August to February again. This distinction is necessary to be made on account of the various appearances, symptoms, duration, going off, and cure of this kind of fever; and inasmuch as one intermittent may drive away another.

Besides the forementioned distinctions, whereby intermittent fevers are distributed into various classes, there is still another general division obtains among them, which is taken from the time of the year wherein they invade. For, as will hereafter appear, when we come to treat of epidemical diseases, there are principally two seasons of the year observed, in which considerable changes happen in diseases, namely, the spring and autumn, or at least the time which is nearest to either of these seasons of the year. Sydenham<sup>t</sup> by a careful observation of diseases, learnt that intermittent fevers as well as other epidemical diseases, begin to spread in the month of February or August, the former of these he called vernal, and the latter autumnal. But he observed those fevers which began in the month of February, continued till they gave way to those of the autumn following; and on the contrary, those of autumn gave way to such

<sup>t</sup> Sect. I. cap. 5. pag. 97.

such as happened in the spring time following: so that in the middle of the month of June or July, the number of vernal fevers greatly diminished, and at length they gradually vanished, and in like manner in the month of January it was observable, that the autumnal fevers diminished: hence, to take notice of this by the way, the reason is evident why (*cæteris paribus*) the number of patients is less in the months of June and July; namely, because the vernal diseases then begin to decline, and autumnal diseases do not yet begin. But although there are some fevers which happen in the intermediate times betwixt spring and autumn, yet these are less frequent, and may be more commodiously reduced to vernal or autumnal, according as they are nearer to one or the other season. For Sydenham<sup>u</sup> has observed, that those fevers, when they invade epidemically, begin sometimes sooner, more especially the autumnal, which then begin to appear towards the end of June; but if the number of these autumnals is about to be small, they invade later, namely, about the month of August or the beginning of September; and I have even sometimes seen them appear still later, namely, the autumnal fevers towards the end of September. But Sydenham has observed, that these fevers are the more numerous as they begin sooner; whence he remarks, that in the year 1661, he saw patients taken with quartan fevers towards the end of June, afterwards spread very largely.

But this distinction is necessary, inasmuch as though the fever bears the same denomination, and keeps the same periods, yet a great difference  
always

<sup>u</sup> Ibidem, pag. 98, 103.



ways occurs both in the symptoms and in the  
 re, according as the fever is either vernal or  
 autumnal. Hence Sydenham<sup>w</sup> doubted not, *Quin-*  
*bres illæ tota sua natura, sive essentialiter, distin-*  
*antur.* ' That these fevers differed from each  
 other, even essentially in their own nature ;'  
 and affirms, that nothing certain can be had in  
 the prognosis or cure, without attending to this  
 difference of fevers. Nor will this seem wonder-  
 ful if it be considered, that in the spring time  
 those thick and viscid humours begin to be dis-  
 solved, which were accumulated in the body dur-  
 ing the winter's idleness ; and therefore the season  
 of the year conspires together with the fever, spee-  
 dily to dissolve the febrile matter ; to which pur-  
 pose likewise conduce the salutary juices of the  
 young sprouting vegetables, which are then usually  
 given either under the denomination of aliments  
 or medicines. Weak cattle which have been kept  
 long time in the stables, being put out to the  
 meadows, are fairly purged by the juices of the  
 grass from those humours which were accumulated  
 in the winter, and in a little time they shine and  
 look well with fat ; and the milk or whey pro-  
 duced from such grass, affords a salutary remedy  
 to mankind. But after the bodies of animals have  
 been parched up by the summer heats, and the  
 most fluid parts of the humours dissipated, there  
 is a greater tenacity produced in the juices, the  
 bile becomes thicker and more acrid, and the  
 temperature of the air becomes more unequal ;  
 whence people being unwary, are so often injured  
 by the morning and evening colds ; and those who  
 are impatient of heat, for want of sufficiently guard-  
 ing

<sup>w</sup> Ibidem.

ing their bodies with clothes, are from hence liable to many diseases. And at the same time the cold continually increasing, frequently occasions relapses to those who are recovering from disease. Hence the reason is evident, why autumnal fevers are of a much worse nature than the vernal, and more difficult to cure.

The various faces or conditions, symptoms, duration, going off, &c. make a considerable difference observable in these fevers. For vernal intermittents are always salutary and seldom of long duration; and even though they are treated in an improper method, and in weak and old people, yet the patient is seldom or never observed to expire of a vernal intermitting fever\*. But autumnal intermittents on the contrary, when they put on the nature of continued fevers, the prolongation and reduplication of their paroxysms (as we shall declare in the aphorism next following) are often not without danger, and frequently prove fatal in those who are cacochymical, or far advanced in years. And these fevers are frequently protracted to several months, and sometimes even hold the patient until the spring next following, as we frequently observe in autumnal quartans. But those very bad symptoms, a hardness of the belly, with a dropical swelling, cachexy, &c. which frequently follow after autumnal intermittents, are seldom or never observed after such as are vernal. But they also differ not less in the cure; for in vernal fevers there is sometimes hardly any cure required, as they usually go off spontaneously, being left to themselves: but in autumnal fevers much more powerful endeavours

vours

\* Ibid. pag. 100.



ours of art are to be used, as we shall explain hereafter in the cure of these fevers. Thus also autumnal fevers are much more inclined to repeat the fit upon the intermediate day than the vernal; and again the nausea, vomiting, anxiety, and other symptoms, attending intermitting fevers, are observed to be much more severe in the autumnal. Moreover, quartans are usually the offspring of autumn, which are worse and more stubborn than other intermittents; and autumnal tertians sometimes change into quartans, which never happens in vernal tertians<sup>y</sup>. Hence Hippocrates<sup>z</sup> says, that summer quartans are usually of short duration, but autumnal ones continue long: and in general he pronounces of all diseases; *quod autumno in universum morbi acutissimi sint, & maxime lethales; ver autem saluberrimum & minime exitiale*: ‘that diseases are universally the most acute in autumn, and the most fatal; but the spring is very salutary, and the least fatal<sup>a</sup>.’

It is therefore evident from what has been said, how great difference there is betwixt vernal and autumnal intermittents; even so opposite are they in their nature, that one drives away the other. Galen<sup>b</sup> has observed a tertian not exquisite begin in autumn, and continue till the spring. Nor does this difference seem to depend only upon the warmth of the spring, whereby the bodies of such as languish under chronical diseases are so entirely recruited; but rather from a change in the epidemical disposition, which no longer favours autumnal

<sup>y</sup> Sydenham ibidem, pag. 104.

<sup>z</sup> Aphor. 25. Sect. II. Charter. Tom. IX. pag. 68.

<sup>a</sup> Aphor. 9. Sect. III. ibid. pag. 98.

<sup>b</sup> Method. Med. ad Glaucon. Lib. I. cap. 9. Charter. Tom. X. pag. 352.

224 Intermitting FEVERS. Sect. 748  
 tumnal diseases. For Sydenham<sup>c</sup> has observed  
*tertianas vernaes, ob phlebotomiam & catharsin in-*  
*debitè celebritas, & regimen insuper cum morbo male*  
*quadrans, moras traxisse etiam usque ad tempus illud,*  
*quo autumnales solent invadere, quæ tempestas, cum*  
*hujus morbi genio sit admodum contraria, eundem*  
*continenter exstinguit:* ‘ that vernal tertians by un-  
 ‘ due bleeding and purging, with a regimen badly  
 ‘ adapted to the disease, have been protracted even  
 ‘ to the time when autumnal intermittents usually  
 ‘ invade; which time or season being very con-  
 ‘ trary to the nature of this vernal disease, always  
 ‘ extinguishes it.’ For the variableness of the au-  
 tumnal season, and the greater inclemency of the  
 air are naturally inclined to favour diseases; and  
 therefore for this reason vernal tertians formerly  
 produced, cannot so well be expected to be cured.

## S E C T. DCCXLVIII.

**M**oreover, these intermitting fevers in the  
 beginning of autumn frequently re-  
 semble very exactly the nature of such as are  
 continual, from the length and reduplication  
 of their fits; when at the same time their na-  
 ture and cure are perfectly different.

Celsus<sup>d</sup> has observed before us, *quod in febris*  
*intermittentibus accessiones interdum quoque confun-*  
*duntur, sic ut notari neque tempora earum, neque*  
*spatia possint:* ‘ that the accessions or fits in inter-  
 ‘ mitting fevers are sometimes confounded toge-  
 ‘ ther;

<sup>c</sup> Sect. I. cap. 5. pag. 100.

<sup>d</sup> Lib. III. cap. 4. pag. 117.



ther, in such a manner, that there is no possibility of remarking their times nor spaces of duration.' From whence, as the patient is never found free from the fever, the disease is often mistaken by the unskilful for a continual fever, and treated with such remedies as are usually exhibited for inflammatory continual fevers. But when the fever has first had the true signs of an intermittent, and then by a prolongation or reduplication of the fits, it turns into a continual fever; as Sydenham<sup>e</sup> frequently observed to happen in a certain epidemical constitution after the third or fourth fit of intermittents, there is then no difficulty in discovering to what tribe the fever belongs. But this is much more difficult, to know when the fever has had no sensible intermission from the first appearance of the disease. In those years when intermitting fevers have been very numerous in this city of Leyden, I have seen several such cases, in which intermittents have lain concealed under the mask of continual fevers. But Sydenham<sup>f</sup> gives us an express admonition on this subject, when he says: *Observandum est etiam, quod in principio febris intermittentium (epidemicarum præcipue, quæ autumno contingunt) haud ita in proclivi est, typum sub primis invasionis diebus rite distinguere, quandoquidem febre continua adscita primum adoriuntur, neque facile est aliquamdiu, nisi diligenter adverteris animum, quidquam aliud præter aliqualem morbi remissionem deprehendere, quæ tamen paulatim in perfectam desinit intermissionem, & typum anni tempestati apte respondentem:* ' But it is to be observed, that in the beginning of intermitting fevers,

VOL. VII.

Q

: chiefly

<sup>e</sup> In Epistol. I responfor. pag. 375.<sup>f</sup> Sect. I. cap. 5. pag. 104.

chiefly such as are epidemical and happen in autumn, that it is no easy matter to distinguish rightly the fits or intermissions of the disease during the first days of its invasion; inasmuch, as they arise at first like a continual fever; nor is it easy to discover for some time, but by the strictest attention, any thing more than a kind of remission in the disease, which yet by degrees ends in a perfect intermission, the periods or returns answering regularly to the season of the year. But we know, that such a fever, though by the prolongation and multiplying of its fits it resembles one continual, ought nevertheless to be referred to the class of intermittents, according to the epidemical constitution; for at the same time there are also many more patients observed ill with double tertians, or even sometimes with triplicate quartans, where the intermissions are sufficiently evident; as we said before at §. 738. But this degeneration of the intermitting into continual fevers seems to arise chiefly from the heat of the air. For we know (as we shall hereafter declare in the cure of intermittents) that by the use of medicines too heating, intermitting fevers may be changed into such as are continual; and the same thing seems to take place here. For this kind of fever is hardly ever observed, but in a constitution or season when intermittents invade epidemically. But it was said before in the preceding aphorism, that then these begin sooner and appear in the month of July while as yet there is a great heat in the air. But the nearer the season is to winter, the more genuine do the majority of intermittents appear; and the number of these continual fevers decrease whence Sydenham expressly remarks, that he has observed these continual fevers in the beginning of intermittents.



But it is of great importance to make this distinction in the practice of physic, because neither bleeding nor other weakening remedies are useful in these fevers, which belong to the tribe of intermittents; though they put on the face of such as are continual. For they require the same method of cure with other intermittents, which are made much worse by such remedies; as will appear hereafter when we come to treat of their cure. Even Sydenham<sup>s</sup> scrupled not to give the bark in such fevers, and with very good success; which yet in continual fevers is of no use.

## S E C T. DCCXLIX.

**T**HEY begin with a yawning, stretching, a weariness, weakness, coldness, trembling, shivering, and paleness of the extreme parts, the respiration becomes very difficult, and the patient is oppressed with anxiety, sickness, vomiting, a quick, weak, and small pulse and intense thirst. As these symptoms are more numerous and severe at the same time, the fever is so much the worse, and the subsequent heat about to follow with the other symptoms, will be proportionably more violent: And this is the first degree of this fever, answering to the increase of continual fevers, and is much more dangerous than at other stages; the urine at this time is generally crude and thin. For upon opening the bodies of those who have died in this cold fit, or first

Q 2.

stage

stage of an intermitting fever, after difficulty of breathings, sighings, and aversion to move the body, I have found thick blood impacted into the lungs; and then the pulse was always small, quick, and irregular. Harv. exercit. anat. cap. 16.

We come now to consider the appearances with which intermitting fevers begin; how they afterwards increase, and arriving at their greatest height, decrease, until they terminate in a perfect intermission or absence of the fever. But all these appearances which will be described, may be observed in a person before in health, when the first fit comes on, or when he has escaped from preceding fits, and seems to be perfectly well.

Almost the first sign that appears is that of yawning and stretching, whereby all the limbs are gently extended and moved often with a kind of sense of pleasure; soon after follows a weariness and uneasiness of the whole body, with a great weakness; so that the body can hardly any longer support itself. At the same time the nails begin to look pale; and from this paleness of the nails, patients afflicted with quartan fevers know very well that the fit is coming upon them: soon after the tip of the nose, and the fingers and toes look pale, as do also the lips and corners of the eyes; and then a coldness begins to be perceived, and the whole body shakes as if cold water was thrown over it. Hence this first beginning of an intermitting fever is by Sydenham<sup>h</sup> called the cold or shaking fit; which symptom he believed to arise from hence, *Quod materia febrilis, quæ nondum turgescens*

<sup>h</sup> Sect. I, cap. 5. pag. 93.



*rescens à massa sanguinea utcunque assimilata fuerat, am tandem non solum inutilis, verum & inimica naturæ facta, illam exagitet quodammodo, atque lacescat; ex quo fit, ut naturali quodam sensu irritata, ac quasi fugam molita, rigorem in corpore excitet atque horrorem aversionis suæ testem & indicem. Eodem plane modo, quo potiones purgantes à delicatulis assumptæ, aut etiam toxica, incaute deglutita, horrores statim inferre solent:*

‘ That the febrile matter not yet assimilated with the mass of blood being put in action, now at length becomes not only useless, but even inimical to nature, and fatigues or irritates her in some manner; whence it happens that nature being irritated with a kind of natural sensation, she endeavours to fly or recede inward as it were; and excites the cold fit and shivering in the body as a sign and witness of her aversion. Just in the same manner as when delicate people upon taking purging draughts, or upon swallowing unawares any thing amiss, are usually seized with horrors immediately after.’

At the same time there attends or soon after follows a trembling of the whole body, beginning first with the lower jaw in many, which is swiftly agitated or drawn up and down alternately; and hence the teeth strike mutually against each other, and often with so great a force, that I have seen the teeth thus knocked out in an old man afflicted with a quartan; even though they seemed to be firm enough before the disease. Sometimes also this trembling is so troublesome and lasting throughout the whole body, that the greatest weariness arises from those involuntary concussions of the muscles; and when the fit is over, so great a weakness and pain continues in all the limbs that the patient can scarce move them; even though a girl, having very moveable or irritable nerves, afflicted

with an autumnal tertian, degenerating after some fit into a quartan. I have given the Peruvian bark in these disorders, when it has not seemed sufficient, and to my surprise those enormous tremblings have ceased; but the quartan has continued moderate the whole winter, and afterwards in the spring has gradually disappeared of its own accord. But sometimes such a coldness arises, more especially in old people afflicted with a quartan, that the limbs grow stiff and become perfectly immoveable, so that they can scarcely bend any joint.

But the generality of these symptoms teach us that the free and equable distribution of the spirits through the nerves, is at that time impeded and disturbed; as is evident from what has been said at §. 627, and 660, concerning trembling and weakness in fevers. But at the same time also the vital functions are disturbed: for the coldness of the extremities, as we said before at §. 621, supposes a less attrition of the vessels and humours against each other, and consequently that the juices stagnate about the extremities; the heart will be therefore less contracted, less emptied, and consequently there will be a less influx of spirits from the cerebellum. But as the veins are contracted by cold, and pressed by the subsultus of the trembling muscles, their contained blood will be derived towards the right ventricle of the heart; and in the mean time the heart being less powerfully contracted, cannot so easily empty itself, as at the same time there is a greater resistance in the arteries; whence it is evident, that the greatest part of the blood must be collected in the large veins and sinus's about the right ventricle of the heart, and in the lungs; and from hence the anxiety arises (see §. 631.) and the patient endeavours by all the efforts of respiration to make a way for the blood.



blood through the lungs from the right to the left ventricle of the heart, but when the lungs are extremely full in their blood-vessels, they are more difficult to expand in their air-vessels; whence the respiration becomes very difficult. But the heart being irritated by the continual influx of blood urged through the lungs, and collected in a great quantity about the right side of the heart, will palpitate very swiftly; whence the pulse will be quick indeed, but weak and small at the same time, because only a small quantity of blood is expelled into the arteries, which is not sufficient to dilate them; concerning which we treated before in the comment to §. 576. But a nausea and vomiting almost constantly attend at this time, and therefore the natural functions are likewise disturbed. Whereas it was proved in the comment to §. 636, an imperviousness of the humours is justly ranked among the causes of thirst in fevers: from thence the reason is sufficiently evident, why great thirst attends at this time of the fever, since the humours stagnate in the extremities, and the impervious blood is accumulated about the heart and lungs.

But all the symptoms before enumerated are rather observed in an intermitting than in a continual fever: for in these last there is seldom or never so great a coldness, nor of so long a duration; and as the increase of a continual fever, unless it is the most acute of all, is never so swift as an intermitting fever, therefore all these symptoms very rarely occur in the beginning of an acute continual fever, or are at least never so violent; whence from these we may be able to distinguish an intermitting from a continual fever. And from hence Galen says \*;

Q 4

Quæ

\* Method. Med. ad Glaucon. Lib. I. cap. 5. Charter. Tom. X. pag. 349.

*Quæ igitur cum rigore invadunt, non abs re ex earum numero esse, quæ circuitu quodam repetunt, duxeris*

‘ That therefore those which invade with a rigour or cold fit, may be not improperly ranked among such as repeat their course.’ But it sometimes happens that the first fit of an intermitting fever is slight, and therefore has not these symptoms so violent.

But as we said at §. 3, the magnitude of every disease is in proportion as it recedes from the natural state; whence it is sufficiently evident, that the intermitting fever is worse, as the symptoms before-mentioned are more violent and numerous. Moreover, it is constantly observed, that the more violent the cold fit, paleness, trembling, &c. so much the more severe is the consequent heat, and the more violent the symptoms follow as consequences of the fever, unless the patient is suffocated in the cold fit. For that cause, whatever it may be, which excites the fit of an intermitting fever, when it begins to act, injures and disturbs the vital actions, with the lungs and respiration, and the heat which depends thereon; and therefore the more violent this cause, so much the greater endeavour must the remaining life exert to subdue and expel it from the body, or at least to render it unactive. But this endeavour of life acting upon the morbid cause, performs its effects by increasing the velocity of the circulation; hence the reason is evident, why so great a heat follows after such a violent cold fit in these fevers. Moreover, when in the severity of the cold fit of the fever, the blood almost stagnates in the larger veins and sinus’s, about the right side of the heart, as also in the lungs, it is disposed to concretion, and its thinnest parts only being expressed, those which remain behind are more closely compacted, and cohere



more strongly together. Hence when the resistances about the extremities of the vessels begin to diminish, the blood impelled by the heart passes through the arteries into the veins with a greater friction; whence the heat will be increased (see § 675.) till the imperviousness of the blood is dissolved, and the proximate cause being either subdued or expelled, the blood returns to its former evenness of circulation.

But as intermitting fevers may be considered two ways, namely, as each paroxysm is taken by itself, or as they are all taken together for the same disease; it is sufficiently evident, that each fit has its beginning, increase, and height in the same manner as we observed before of continual fevers at §. 590; and then by comparing these together, the first degree of this intermitting fever will answer to that stage of continual fevers which is called their increase, and in which what remains of health is gradually diminished; and on the contrary those symptoms which depend on the disease are increased. But if all the fits of the intermitting fevers are considered together, then the increase of the fever may be said to be as long as the fits exceed that which preceded last in their continuance, with the number and violence of the symptoms.

But it is evident that this first degree of the fever is the most dangerous, if we consider the present symptoms, which demonstrate a considerable injury of the vital functions. For the blood, as we said before, is accumulated in the lungs, about the right side of the heart, only a small quantity of it passing through into the left ventricle, which palpitating with a tremulous motion, cannot protrude it through the arteries, contracted by the cold, to the extreme parts of the body,  
and

and from the arteries again into the veins, and from them in to the heart again, which whole course thus impeded and disturbed ; but as life itself depends upon this course, as we said at §. 1, life therefore evidently in danger at this time of the fever. It is indeed true that the following stage of the fever removes these obstacles, and restores the humours to their due freedom of circulation and therefore very few people die in the fits of intermitting fevers, in comparison of the great numbers which are invaded by these fevers ; but in the mean time it is true, that the greatest danger attends in this cold fit, or first stage of the disease ; and therefore such as die of these fevers perish at that time. What has been here said is confirmed by the observations of the most eminent physicians. Thus Sydenham<sup>1</sup> observes, *Quo-  
qui ex febribus intermittentibus moriuntur, si quidem  
in paroxysmo pereant, in primo illo tempore (exhor-  
rescentiæ scilicet) fato fungantur ; nam si ad tempus  
effervescentiæ pertigerint, saltem pro illa vice non  
moriuntur.* ‘ That those who die of intermitting  
‘ fevers, if they perish in the fit, yield to fate  
‘ more especially in the time of the horror or cold  
‘ chill ; for if they survive till the hot fit begins  
‘ they recover at least for that time, or do not  
‘ die then.’ But he observes in another place<sup>2</sup>  
that old people have sometimes perished, either  
in the beginning or in the cold fit itself. Thus  
Hollerius<sup>3</sup> saw a woman extinguished in the cold  
fit, which happened in the beginning of the ac-  
cession of a quartan fever. The same thing is also  
confirmed

<sup>1</sup> Sect. I. cap. 5. pag. 94.

<sup>2</sup> Ibid. pag. 115.

<sup>3</sup> In Coac. Hippocr. pag. 302.



confirmed by Hoffman<sup>m</sup> upon his own experience. Great weight is added to these observations, from what Harvey<sup>n</sup> found in the bodies of those who expired in this first stage of intermitting fevers: namely, *In tertianæ febris principio morbifica causa cor petens, circa cor & pulmones quando immoratur, anhelosos, suspiriosos & ignavos facit, quia principium aggravatur vitale, & sanguis in pulmones impingitur, incrassatur, non transit (hoc ego ex dissectione illorum, qui in principio accessionis mortui sunt, expertus loquor) tunc semper pulsus frequentes, parvi, & quandoque inordinati sunt; ab adaucto vero calore, attenuata materia, apertis viis & transitu facto, incalescit universum corpus, pulsus majores fiunt & vehementiores, ingravescente paroxysmo febrili.* ‘ That in the beginning of a tertian fever, the morbid cause tending to the heart, is sometimes stopped about the heart and lungs, and occasions shortness of breath, sighings, and an aversion to move, because the vital principle is oppressed, and the blood impacted into the lungs is thickened and concreted without passing thro’ them (this I speak upon my own experience, in the dissection of those who have died in the beginning of the accession or fit of the fever); whereupon the pulse is always quick, small, and sometimes irregular; but when the matter is attenuated by the increased heat, the passage is opened, and a way made for the blood, the body grows hot throughout, and the pulse becomes larger and stronger, as the febrile or hot fit advances.’ For when the febrile heat follows after the cold, we know then that the passages are opened again for the blood to be propelled even

<sup>m</sup> Medicin. ration. system. Tom. IV. part. 1. pag. 81.

<sup>n</sup> De motu cordis, cap. 16.

even to the extremities of the body, and therefore that all the obstacles are removed, whether arising from a contraction of the vessels, or an imperviousness of the humours; and therefore, that there then only remains an increased velocity of the circulation, which in these fevers is usually quieted in a little time, so that there is no danger of the patient's perishing in the hot fit of the fever. It is indeed true, that in a plethoric person, the blood being rarefied by the heat of the fever, some of the vessels may be broke in the brain, lungs, &c. with a fatal event; but then it is sufficiently evident, that in this case it does not depend on the fever as the only cause, and that it cannot be ascribed to those symptoms which attend every intermitting fever; concerning which only we here treat.

But the urine discharged at this time of the intermitting fever is generally crude and thin from the constriction of the vessels, a weakness of the force of the heart, and the frequent drinking of watery liquors; whence the kidneys transmit only the thinnest and almost nearly the watery parts of the blood. See also what has been said concerning the symptoms of the cold chill in fevers at §. 576, to 579.

## S E C T. DCCL.

**T**HIS first stage or cold fit §. 749, is immediately followed by another, beginning with a heat, redness, a strong, large, and more free respiration, less anxiety, a larger and stronger pulse, great thirst, and great pain in the head and limbs, the urine being generally red; and this stage answers to the acme or height of continual fevers.

After



After this first stage of the intermitting fever is continued some time longer or shorter, according to the different nature of the fever, season of the year, age and habit of the patient (see §. 575.) the coldness and trembling begin to lessen, and a heat gradually returns in the extreme parts of the body; and at the same time the paleness disappears, and a redness returns, the respiration which was before difficult becomes more free, and at length when the heat is increased it is both strong and large; for the blood which before almost stagnated about the heart and lungs, has now a free passage, but with a rapid motion through them; hence an increased respiration is necessary, in order to transmit a larger quantity of blood through the lungs in the same space of time. But the anxiety which attended in the cold fit of the fever from the egress of the blood being obstructed from the heart (see §. 631.) is now lessened, as the obstacles or impediments decrease; and at the same time the pulse becomes larger and stronger, because the heart then propels its contained blood into the arteries, which are now pervious in their extremities. But the thirst as yet often remains intense, partly from the humours being not yet perfectly dissolved, and partly from the dryness of the tongue and mouth which usually attend the heat in fevers: frequently also, as we shall see hereafter, from the putrid bilious humours collected in the first passages, which being put into motion, and rendered more acrid by the febrile heat, may excite the most intense thirst, see §. 636. But since the muscular parts were agitated by so many violent concussions and tremblings preceding, it is no wonder if the limbs ache when the blood is now propelled through them with a considerable force and velocity. But as the vessels

are

are more distended by the febrile heat and increased velocity of the circulation, there is frequently a violent pain of the head attends at the time of the fever. But the urine appears higher coloured than in the cold fit, from the greater attrition of the vessels and humours against each other; and it generally appears red, more or less intensely coloured, according to the degree and violence of the fever, and quantity of the drink taken.

This stage of the intermitting fever, is by Sydenham<sup>o</sup> called the time of its ebullition or fermentation, (but in what sense he would have us understand these terms, he tells us in another place <sup>p</sup>,) namely, whereby nature is used to subdue, and expel from the body, the morbid matter as in other fevers. But this stage of the intermitting fevers, corresponds to the height of acute fevers, because afterwards all the symptoms remit, and the fever gradually decreases. But it differs in this, that in the height of acute fevers nature encounters with the greatest violence of the disease, almost upon equal terms, insomuch that the event is uncertain, since the disease sometime overpowers, and nature being conquered, sinks under the oppression, as we said before in the comment to §. 590; but in intermitting fevers we are certain that in this fit nature will prevail over the disease, since those who perish, die in the cold fit or first stage, as we said before under the preceding aphorism.

S E C T

• Sect. I. cap. 5. pag. 94.

• Sect. I. cap. 5. pag. 58, 59.



## S E C T. DCCLI.

**A**T last there generally ensues a profuse sweating, with a remission of all the symptoms, the urine appears thick, and deposits a sediment like brick dust; the patient falls into a sleep, the fever goes perfectly off, and leaves upon the patient a weakness and weariness.

We come now to the last stage of an intermitting fever, which Sydenham<sup>a</sup> calls the time of despumation, admonishing us, that by this name he intends nothing more than an expulsion or separation of the febrile matter, already attenuated and subdued. But this expulsion seems chiefly to be performed by urine and sweat; for the greatest height of the fit is almost constantly followed with a sweat, and generally one that is profuse and hot expelled from the whole body. For since great thirst attends both in the cold and hot fit of the fever, from the patient's plentiful drinking, the blood will abound with a large quantity of thin juices; and as the velocity of the circulation is increased at the same time, and a free circulation is restored to the humours throughout all the vessels of the body during the hot fit, the aqueous parts of the blood will easily find themselves a passage through the small exhaling vessels of the skin, now hot and relaxed by the warmth of the bed. But the patient is commonly much relieved by this sweat; and at the same time

<sup>a</sup> Sect. I. cap. 5. pag. 94.

time all the symptoms which attend the febrile heat diminish, and the patient becomes perfectly free from the fever. But a vomiting sometimes attends in this as well as in the former stages of the fever, and by that discharge, or by a flux from the bowels, the febrile matter is in some measure expelled; but a sweat almost constantly closes the paroxysm of an intermitting fever. Galen<sup>r</sup> has well remarked this, where he describes the course of an exquisite tertian, saying, *Et jam bibendum tempus adest ægrotanti, & statim post potum plurimus vapor calidus per cutim exhalat, sudoris nuncius, bilisque supervenit vomitus, vel alvus deorsum prorumpit, & biliosum mejit, &c. supervenit enim sudor vaporosus & calidus, quemadmodum in balneo. Totum vero corpus ipsis æqualiter sudat, talisque est pulsus, qualis sanorum in exercitationibus & balneis velox scilicet, ac magnus ac vehemens & frequens.*

‘ But now is the time for the patient to drink  
 ‘ and immediately after drinking, many warm  
 ‘ vapours exhale from the skin of the whole body  
 ‘ being the fore-running messenger of a sweat, and  
 ‘ a vomiting of bile supervenes, and a flux from  
 ‘ the bowels downwards, and a bilious urine, &c.  
 ‘ for the sweat which follows is hot and vaporous  
 ‘ almost as in the stove or warm bath. But the  
 ‘ whole body sweats equally throughout, and the  
 ‘ pulse appears as usual in healthy people under  
 ‘ exercise, or in the hot bath, namely, quick  
 ‘ large, strong, and frequent.’

But the urine discharged during the time of this sweat, or after the fit is over, frequently shews itself of a red colour when it is first discharged, being in a manner throughout saponaceous

ceous



aceous and frothy ; and then after having stood for some time, a sort of thin skin appears on the surface, and adheres to the sides of the containing vessel : but in the bottom of the vessel is deposited a large quantity of sediment, resembling in colour the powder of burnt bricks or armenian bole, from whence this sort of urine is commonly termed lateritious. But this kind of urine appears so frequently after the fits of intermitting fevers, that Sydenham<sup>s</sup> more especially discovered them by this sign, when they sometimes lay concealed under the mask of other fevers. For he remarks, that sometimes it happened in a certain epidemical constitution ; *Ut earum paroxysmi non cum rigore & horrore, quos postea febris excipit, invaderent, sed eger iisdem plane symptomatibus tentaretur, ac si apoplexia vera laborasset, quæ tamen nihil aliud esset, utcunque hunc affectum æmularetur, quam ipsa febris caput impetens, ut ex aliis signis, ita ex colore urinæ satis liquebat ; quæ in intermittentibus ut plurimum rubore saturato exstat, qualis cernitur in urinâ eorum, qui ictero laborant, etsi non adeo intense rubet ; & pariter sedimentum deponit pulverem laterum esse referens.* ‘ That their paroxysms or fits came on without a rigor and shivering, after which the fever begins ; but the patient was troubled with perfectly the same symptoms, as if afflicted with a true apoplexy, which yet was nothing else than the fever itself affecting the head chiefly, as appeared sufficiently from the colour of the urine, as well as from other signs, however much it might resemble an apoplexy ; for the urine in intermittents generally appears of a deep red colour, almost like what is perceived in the

VOL. VII. R ‘ urine

<sup>s</sup> Epist. 1. Respons. pag. 387.

‘ urine of such as are afflicted with a jaundice, though it be not so intensely red; and likewise it deposits a sediment almost resembling brick-dust.’ And therefore when he saw such a urine, he used no evacuations by bleeding, purging, or the like, which he knew to be against intermittents, but he waited till the fit went off spontaneously, and then attacked the fever by the peruvian bark.

But it is to be observed, that the urine is not always discharged thus at this time of the fever; for after vernal intermittents, and especially exquisite tertians, whose fits do not extend beyond twelve hours, the urine is then often discharged of a pale reddish, or a yellowish colour, with a cloud or other matter suspended in it; and sometimes they have a light uniform and white sediment, which indeed is a good presage, as such fevers usually prove easy and short, as Galen\* remarks. And more especially such a red coloured urine is not to be observed in the fits of autumnal intermittents, but for the most part only when the fits are more than usually violent. Moreover, the urine is discharged with this appearance in scorbutic patients, though they are not afflicted with an intermitting fever†.

But this sweat is usually followed with a soft sleep, and after this there is observed a perfect intermission or absence of the fever, but a weariness and weakness remain, whereby the fit of an ephemera may be distinguished from the fit of an intermitting fever, as we said before at §. 728, in treating of an ephemera.

## S E C T.

\* Vide locum modo citatum.

† Vide H. Boerh. Instit. §. 1002.



## S E C T. DCCLII.

**B**UT these intermitting fevers frequently turn into such as are as acute and dangerous, principally, and most commonly from too great a heat, and too great a motion excited in the humours.

As long as these fevers have a perfect intermission, they are seldom or never dangerous, except in old and very weak people; but when they degenerate into acute continual fevers, they are often very dangerous. That intermitting fevers are naturally inclined to make this change, was said before at §. 748; for it there appeared, that autumnal fevers, although properly intermittent in their own nature, do yet frequently resemble continual fevers, when from the prolongation or reduplication of their fits, a remission only without an intermission can be observed. But it was there observed, that this more frequently happened, when the intermitting fevers were epidemical, and came in sooner than usual with the summer heats. But even perfect intermitting fevers, which have kept up regularly to their periods for a time, do likewise sometimes change into continual acute fevers, if the patient is confined to his bed, or if the cure of the fever is attempted by medicines which are too much heating; and thus also Sydenham<sup>u</sup> has observed, that many have perished from the brain being injured from these fevers turning continual; and he likewise cautions against the use of sudorifics

R 2

rifics

<sup>u</sup> Epistol. 1. Responsor. pag. 375.

rifics in tertian and quotidian fevers for the same reason, more especially if those fevers having not yet put on their regular periods, seem to be as yet upon the brink of changing into continual fevers. But upon another occasion he remarks <sup>w</sup>, that if the sweat, which usually closes intermitting fevers, be protracted or carried to excess while the patient is confined to his bed, it very often kindles a continual fever. But from what has been said it is sufficiently apparent, that this change of the intermitting into continual fevers is to be ascribed to the exciting of too great a heat and motion. Thus a virgin afflicted with a tertian, was advised to take a large draught of spirit of wine mixed with some hot ale and beaten pepper; whence the tertian was changed into a most violent continual fever, in which the patient was delirious for many days: but when the acute continued fever went off, the tertian again returned, but with great irregularities, and attended with the most obstinate and malignant symptoms <sup>x</sup>. I have seen a quartan in the spring time turn into the most severe pleurisy, from being treated with the hottest medicines; but the quartan did not continue while the pleurisy attended, as happened in the case mentioned before in the comment to §. 738; but the fit of the quartan after taking of the hottest medicines, instead of ending in a perfect intermission or absence of the fever, changed into a pleurisy.

## S E C T.

<sup>w</sup> De Podagra, pag. 565.

<sup>x</sup> Medical Essays, Tom. I. cap. 31. pag. 296.



## S E C T. DCCLIII.

**A**N intermittent fever in running thro' its three stages before-mentioned, §. 749, 750, 751, offers great violence and injury to the smallest fibres of the vessels and viscera, by the stagnation, obstruction, coagulation, propulsion, resolution, and too great attenuation of their humours; from hence the vessels are weakened, and their juices become morbid, being chiefly vitiated with that kind of disorder, which proceeds from a too imperfect assimilation and unequable mixture of their parts; and from hence again at the same time arises acrimony: and therefore from all these causes together, there is a great inclination in the patient to profuse weakening sweats, dissipating even the viscid parts of the blood itself; then also the urine is wonderfully thick, turbid, oily, and like that of cattle, the saliva also appears of the same kind; and hence the blood being weak, dissolved with little cohesion in its red parts, and robbed of its best juices, what remains behind is thick and acrid at the same time; and therefore from a relaxation of the vessels, and the humours being rendered thick and acrid, these fevers of long continuance often terminate in chronic diseases, as scurvy, dropsy, jaundice, leucophlegmacy, scirrhus tumors of the abdomen, and the disorders which may follow from thence.

If now we attentively consider every thing which happens in the three stages of intermittent fevers, before described in the aphorisms here cited in the text, we may understand the many effects or consequences which happen in the body from these fevers, concerning which we are to treat under the present aphorism.

The soft and tender body of a young person after death, becomes as cold as the ambient air, and then the limbs become so stiff, that they can hardly be bent by any force. Almost the like rigidity is observed in the most severe and long continued cold fit of a fever, and therefore it is evident, that the cohesion of the solid parts is then greatly increased. But by the succeeding heat the parts are relaxed which were before rigid, and the velocity of the circulating motion being increased, the juices act with a greater impetus against the sides of the vessels, and distend them; whence the whole body which before looked pale and contracted or collapsed, now swells and looks red. But when these changes are often repeated by the violent and frequent fits of intermittent fevers, the due strength of the solid parts must of consequence be greatly diminished. For even hard wood by often bending and straightening breaks, and the strongest springs in this manner lose all their force. Thus also the flesh of animals, if once frozen in the winter time, do by a sudden heat become extremely tender; whence it is evident how much the vicissitudes of heat and cold suddenly following each other, may weaken the solid parts of the body.

If now it be considered, that during the cold fit of a fever the humours stagnate, and that the blood, by rest in the larger veins and sinuses about the heart, tends to concretion, and becoming



becoming thus impervious obstructs the vessels, through which it is notwithstanding impelled with an increased force from the heart, during the hot fit of the fever; it is sufficiently evident, that then it must more difficultly pass through the smallest extremities of the arteries, and that therefore the vessels must be more dilated, when there is a greater resistance about the extremities of the arteries, and hence therefore the solid fibres composing the coats of those vessels, will be more stretched and weakened (see §. 25. N<sup>o</sup> 3.) until the too strongly cohering particles of the blood, are so attenuated and resolved betwixt the force of the heart and the action of the vessels, as to pass through the smallest extremities of the arteries into the veins, whereupon the paroxysm terminates, and the circulation returns to its former sedateness.

The vessels are therefore weakened, but the humours become morbid.] That is to say, when they recede from the conditions of healthy humours. For it was demonstrated in the comment to §. 25, and 44, that a due strength is required in the solid parts, in order to assimilate the ingested aliments into our own nature, and give the juices those properties which belong to our healthy fluids. Since therefore it has been demonstrated, that the strength of the solid parts is weakened by intermitting fevers, it is evident that a morbid degeneration of the humours must necessarily follow, more especially such as proceeds from an imperfect assimilation of their parts, and an unequal mixture of them together. For as the red blood in the cold fit runs towards the internal parts, as we are taught from the paleness of the body, and as it is accumulated and almost stagnates in the larger vessels about the heart, only

the more thin parts being expressed through the lungs into the left ventricle of the heart, are sufficient to continue life in a weak state; therefore that intimate mixture of all the parts of the blood together, which happens in a healthy state will be thus disturbed; and thus the grosser particles of the blood seem disposed to recede afterwards from those which are more thin, since that intimate and most perfect union of the particles with each other is interrupted for so long a time. But as all our humours in a perfect state of health, except the bile and urine, are without acrimony, it is no wonder if they should become acrid, when they degenerate from an healthy state, more especially as the motion of the blood is increased through the vessels during the hot fit of a fever; whereby its gelatinous and insipid parts may be dissolved into volatile, acrid salts and oils, as we demonstrated before at §. 100; and then by the fever itself the formation of good chyle, to moderate the acrimony of the blood, is also impeded; and moreover, the due concoction and assimilation of the ingested nourishment is also deficient, even in the intervals betwixt the fits, from the weakness of the solids and degeneration of the humours.

From all these causes together, there is a great inclination to profuse weakening sweats, dissipating even the viscid parts of the blood itself.] For even the perfect mixture and union of the parts of the blood among each other are diminished, as we see from a too weak action of the solids upon the fluids, when the texture of the blood is less firm; hence the thinner parts of the blood more easily recede from those which are more thick, and are expressed through the more relaxed vessels of the skin. But even the thickest red parts of the blood



blood are dissolved by these fevers, as we are  
 assured from the pale colour of those who have  
 been long afflicted with them; and thus not only  
 the watery and thinner parts of our humours, but  
 even the viscid parts of the blood itself dissolved,  
 are sometimes expelled by sweats. For we see  
 that the ingested aliments when they are assim-  
 ilated into our own nature, first assume the viscid  
 or plaistic disposition of the blood, which so easily  
 concretes by an increased heat; whereas naturally  
 no such concrescible humours are expelled from  
 the body as are naturally found in the serum of  
 the blood, none of which is contained either in  
 the urine, saliva, bile, or other humours separated  
 from the blood, and much less are any of the red  
 parts of the blood to be naturally found in any of  
 those humours. But the vessels being weakened  
 throughout the body, and their emissaries greatly  
 relaxed by profuse and long continued sweats,  
 which emissaries open throughout the whole sur-  
 face of the skin; therefore the thicker humours  
 may thus escape from the body by these ways,  
 and even the viscid parts of the blood itself may  
 be sometimes expelled. Thus in healthy people  
 exercised with hard labour in the scorching sun,  
 a viscid sweat is expelled, tinging the linen of a  
 yellow colour; and even sometimes, more espe-  
 cially under the arm-pits, a red coloured sweat  
 is forced out. In dying people a viscid and  
 clammy sweat appears. But when those parts  
 which are prepared from the chyle and ingested  
 aliments in their assimilation into our healthy hu-  
 mours, are thus expelled from the body in sweats;  
 since it is from them that those parts must be after-  
 wards restored, which are destroyed from the solid  
 and fluid parts of the body by the actions of life,  
 it is sufficiently evident that great weakness must  
 follow.

follow. Those are therefore deceived who judge that this sweat ought by all means to be promoted, thinking thereby to evacuate all the febrile matter, when the fit goes off with such a sweat. For daily observations teach us, that those are above all the most difficultly recovered from intermitting fevers, who melt away with the most profuse sweats; nor is their recovery practicable when these fits are first suppressed. Hence also (as we shall declare hereafter at §. 764.) the sweat which attends at the end of the paroxysm is to be moderately promoted by flesh broths, ptisans with wine, and the like, which afford plenty of liquid nourishment; but that they ought not in the least to be forced by remedies, nor the heat of bed-clothes; lest such parts of the humours should be forced out in sweats, which ought to be retained. But the weakness and lowness which follow after these profuse sweats, sufficiently demonstrate how prejudicial they are. For here takes place the general rule in practice which Hippocrates has established, not only with respect to purgings and vomitings, but also with regard to any other evacuation from the vessels; namely, *hæ tales, quales, oportet, si conferant, & facile ferant; sin minus, contra*; ‘That these ought to be conducted and promoted in a convenient manner, if they prove useful, and are easily tolerable to the patient; otherwise that they ought to be checked.’

Then also the urine is wonderfully thick, turbid, oily, and like that of cattle.] For the urine is a watery lixivium, mixing itself with, washing out, and expelling from the body every thing capable of being dissolved in water, and of passing through



through the vessels of the kidneys; and it naturally serves to wash out those acrid, oily, and saline parts, which would be mischievous if they were any longer retained in the blood. But since by the increased motion of the circulation in the fever, the oily and saline parts of the blood acquire a greater acrimony (see §. 100.) and a great number of particles are abraded from the solids, while the parts of the blood itself are less assimilated, and not uniformly mixed, joined with a weakness of all the vessels; therefore the reason is evident why the urine is thicker, and more highly saturated with contents, so as to appear turbid, saponaceous, and oily, almost at the instant when it is discharged. For we know that by intermitting fevers the fat parts of the body are dissolved and expelled, since fat people, long afflicted with these fevers become perfectly lean. But these fat or oily parts dissolved and mixed with the circulating humours, rendered more acrid by heat and motion through the vessels, become at length saponaceous by mixing likewise with the more acrid salts of the blood; and thus dissolving in water they escape in the urine. For the same reasons likewise the saliva sometimes appears of the like kind, that is to say, thicker and more abundant, when the vessels serving to separate and discharge this fluid, being weakened, are too much urged or over-strained by the humours impelled with a greater force by the fever.

Hence the blood is also weak and dissolved, having little cohesion in its red parts, &c.] The blood of healthy and strong people is firm and compact, so that it almost entirely concretes into a solid mass when it is drawn out from a vein; but on the contrary, in relaxed and weak girls the blood is thin or watery, and appears to contain only

only a small portion of a red concrete, swimming in a large portion of a thin liquor. But this great difference in the blood proceeds from the greater or less strength of the vessels and viscera, which act upon our fluids, as we demonstrated before under the title of a weak and rigid fibre. But since we have demonstrated, that the vessels are weakened by intermitting fevers long continued, therefore the cohesion of the parts of the blood will be lessened, and from thence the cruor or red part of it will be dissolved and hardly concrete, and at the same time the most fluid and moveable parts will be expelled by sweats after each paroxysm; and although the fluid parts are again restored by plentiful drinking, yet they will continue crude, while the assimilating powers are weakened, so that the blood will be robbed of its best parts; and while its most fluid parts are expelled in sweats, what remains will grow thick, at the same time that it recedes from the mild nature of our healthy humours by turning acrid, as we have already demonstrated. If now these two causes concur, namely, weakness of the relaxed vessels, and a greater thickness and acrimony in the humours moved through those vessels, the reason will be sufficiently evident, which will account for most of the disorders which usually follow after violent and long continued intermitting fevers; concerning which, see also what has been said at §. 44. But we have more especially reason to fear a too easy dissolution of the vessels, while the thick and acrid humours are impelled with a more rapid motion through the weakened vessels during the paroxysm of the fever. Thus I saw a large quantity of blood burst forth from the gums in a virgin, afflicted with a violent and long continued quartan; and ecchymoses appeared upon the



the eye-lids without any external violence: and  
 hence we may understand why Hippocrates<sup>z</sup> says,  
*Quibus in febris quartanis sanguis e naribus flux-*  
*it, malum est.* 'That a flux of blood from the  
 nose is a bad sign in such as have quartan fevers.'  
 We know indeed, that these last aphorisms are  
 esteemed by many to be not genuine, whence the  
 credit of this last quotation may be called in  
 question, because it seems repugnant to another  
 passage in Hippocrates<sup>a</sup>, where he says, *Urina*  
*crassa, alba, qualis Archigenis, in laboriosis quar-*  
*tanis interdum exit, & liberat abscessu. Si vero*  
*contra hoc & sanguis de naribus profluat & satis &*  
*copiosè.* 'That thick white urine, like that of  
 Archigenes, is sometimes discharged in violent  
 quartans, and critically relieves the patient, and  
 this more especially if there is besides a suffi-  
 ciently copious flux of blood from the nose.'  
 From whence it would seem, that one may con-  
 clude he recommends an hæmorrhage from the  
 nose to be useful and salutary in quartan fevers.  
 But if this place be compared with the 74th apho-  
 rism of his 4th section<sup>b</sup>, which we mentioned  
 before upon another occasion in the comment to  
 594, it will sufficiently appear, that the term  
*quartanis* does not relate to fevers, but to the day  
 of the disease; and therefore that it does not de-  
 note an intermitting quartan fever, but the fourth  
 day of a fever; and in this manner Fœsius and  
 Cornarius translate this text, as Charterius very  
 well observes in his commentaries upon these last  
 aphorisms of Hippocrates<sup>c</sup>. An hæmorrhage  
 from

<sup>z</sup> Aphor. 5. Sect. VIII. Charter. Tom. IX. pag. 342.

<sup>a</sup> Epid. 6. Charter. Tom. IX. pag. 475.

<sup>b</sup> Charter. Tom. IX. pag. 184.

<sup>c</sup> Ibid. pag. 342.

from the nose is therefore justly condemned as a bad sign in quartan fevers, upon the authority of the passage before cited : as well as because evacuations of blood are in themselves prejudicial to the cure of intermitting fevers, as we shall declare hereafter at §. 762 ; and such an hæmorrhage seems to denote, that the vessels are too easily capable of a dissolution from the more acrimony of the blood.

From this thickness and acrimony of the blood those inflammations of the tonsils seem to have been produced, which Sydenham<sup>d</sup> observed after long continued intermitting fevers, more especially if too profuse evacuations have been used. But he remarks, that this disorder was soon afterwards followed with a hoarseness, a hollowiness of the eyes, an hippocratic face, and certain forerunning signs of death. But it is evident enough, that the like disorders may happen in other parts of the body from the same causes. Thus Jacotius remarks, *In febre tertiana, cum rigore non ita ordinato, exortam suppurationem in imo ventre, cujus nullum signum memoratu dignum præcesserat ; unde subito effuso pure supra intestina, aut intestinis ipsi ad sphacelismum perductis, improvisa mors secuta est cum rigore, sudore frigido, animi deliquio, doloris ventris & inflatione.* ‘ That he had observed ‘ three times in the same year, a suppuration ‘ formed in the lower belly in a tertian fever ‘ without the common rigor or cold chill, and ‘ without any remarkable sign preceding ; whence ‘ the matter being suddenly poured out upon ‘ the intestines, or the intestines themselves turning ‘ ing to a mortification, sudden death ensued ‘ with

<sup>d</sup> Sect. I. cap. 5. pag. 122.

<sup>e</sup> Holler. in Coac. Hippocr. pag. 811.



Sect. 753. Intermittent FEVERS. 255  
' with a rigor, cold sweats, fainting fits, and a  
' pain and inflation of the abdomen.' For such  
blood as is both sharp and thick at the same  
time is the most apt to produce inflammations, as  
is evident from what has been said in the history  
of inflammation at §. 376, 377.

At the same time also it appears, that such a  
cacochymia of the blood arising from intermittent  
fevers long continued, may produce various chro-  
nical and most stubborn diseases, according as the  
obstructing matter is lodged, either in this or that  
viscus; or according as the chronical diseases arise  
from disorders gradually introduced in the juices,  
infecting the whole mass of blood with an ill  
state (see §. 1050.) Thus that the scurvy should  
often follow intermittent fevers will not appear  
wonderful to any who considers, that the proxi-  
mate cause of this disease is too great a thickness  
and acrimony of the blood, as we shall hereafter  
demonstrate at §. 1153, from all the previous ap-  
pearances of the disease. But it was demonstrated  
at §. 44. N° 2, that a dropsy arises in part from  
too great a weakness of the solids, which weak-  
ness takes place in the present disorder, as we  
observed a little before. In this case the legs  
usually swell first, and when these are perfectly  
distended, the lymph is collected in the cavity of  
the abdomen. But a swelling of the legs is no  
bad sign, nor did Sydenham<sup>f</sup> even esteem it as  
such, but rather he began to conceive hopes that  
the disease would terminate well, being taught by  
observation, that the fever often went off by de-  
grees, in proportion as this symptom advanced;  
and then such a swelling of the legs does not seem  
to arise from mere laxity only, but something of  
the

<sup>f</sup> Sect. I. cap. 5. pag. 120, 122.

the morbid matter is also deposited upon these parts. But as purges too often repeated in the course of the fever, frequently gave birth to this symptom, which seldom happens at least in young people, but from that cause<sup>g</sup>, it seems to be less safe to attempt the cure of these disorders by evacuations, more especially if the fever still continues; for Sydenham<sup>h</sup> had observed, that such medicines made the fever take deeper root at the same time that they did not remove the dropsy. Frictions of the swelled parts, and the use of medicinal wines, with bitters and corroborating aromatics, usually remove the disorder with ease and safety, while at the same time they happily relieve the languishing body. The same thing is obtained if this unactive matter is not deposited towards the lower parts of the body, but being diffused throughout the whole habit produces a leucophlegmacy; which yet (as we said before at §. 72.) differs from a dropsy, because in the latter the humours degenerate into a watery thinness, whereas in a leucophlegmacy they are cold, phlegmatic, and indisposed for motion, producing a paste-like or inelastic softness of the whole body; whereas in a dropsy arising from too great a dissolution of the blood the feet first begin to swell. Even Hippocrates<sup>i</sup> has remarked, that a leucophlegmacy arises after long continued fevers, when he says, *Quum pituita alba detinuerit, totum corpus tumore albo intumescit, &c. morbis hic a pituita oritur, quum quis ex diuturnis febribus, pituitosus existens, impurgatus est, vertitur pituita ad ejus carnes.*

‘ That

<sup>g</sup> Ibid. pag. 120.

<sup>h</sup> Ibidem.

<sup>i</sup> De affectionibus, cap. 5. Charter. Tom. VII. pag. 625.  
& De internis affect. cap. 52. ibid. pag. 675.



That those who are afflicted with white phlegm have a white swelling of the whole body, &c. but this disease arises from phlegm, when any one after long continued fevers has not been purged of the phlegm with which they abound, and which diffuses itself throughout all the soft or fleshy parts.' But a much worse dropsy follows after long continued fevers, if they occasion scirrhus obstructions of the viscera; from whence that a dropsy may arise, we shall demonstrate in the comment to §. 1229.

But since it is demonstrated in our lectures or institutes of the theory of physic, that the venal blood returning from the pancreas, stomach, omentum, spleen, and mesentery is collected together in the trunk of the vena portarum, and from thence distributed by the converging branches of the same vessel throughout the whole substance of the liver; it is therefore evident, that obstructions may be very easily formed in this viscus by the thick blood, when it has been deprived of its most fluid parts by long continued fevers, because here the venal blood is obliged to pass through narrow arterial extremities, without any new force from the action of the heart. But that an obstruction of the liver is frequently followed with a jaundice, will appear from what will be said hereafter, when we come to treat of an inflammation in the liver. Hence also I remember, that in the year 1727, when autumnal intermitting fevers were very obstinate and epidemical, a great many patients were afterwards troubled with a jaundice.

But from the same cause obstinate obstructions may arise in the other viscera of the abdomen, as we are taught by experience and observation that they sometimes change into scirrhus tumours, hardly capable of being afterwards resolved. Thus

Galen<sup>k</sup> observed in an obstinate tertian, which beginning in autumn held unto the spring following, that the spleen greatly swelled, and that the præcordia was distended with flatus. Also it is evident enough that the same thing may happen in the pancreas, omentum, mesenteric glands, &c. But in the mean time it is to be observed, that tumours of the abdomen following after intermitting fevers, are not always of such an ill presage: for Sydenham<sup>l</sup> has observed; *Quod cum febres autumnales teneram ætatem diu cruciarint, nulla spes sine easdem abigendi, donec abdominis regio, circa lienem præcipue, indurari atque tumesceri inceperit; iisdem enim gradibus, quibus hoc symptoma supervenerit, febris etiam fugam meditatur. Neque forte ex meliori aliquo prognostico morbum hunc brevi abiturum dixeris, quam si sedula observatione suboriri hoc symptoma perspexeris;* ‘That when autumnal fevers ‘ torture tender children a long time, there are ‘ little or no hopes of removing them, until the ‘ abdomen begins to swell and feel hard, more ‘ especially about the spleen; for by the same ‘ degrees that this symptom comes on, the fever ‘ likewise endeavours to make its escape. Nor is ‘ there perhaps any better prognostic whereby you ‘ may pronounce that the disease will go off in a ‘ short time, than if by a diligent observation you ‘ shall perceive this symptom appear.’ For after the fever has ceased, the collection of foul humours is usually happily resolved and expelled from the body by purges, several times repeated, with frictions of the abdomen, and inunction with unguentum arthanitæ, martiatum, &c. For it seems frequently

<sup>k</sup> Method. Med. ad Glaucon. Lib. I. cap. 9. Charter Tom. X. pag. 352.

<sup>l</sup> Sect. I. cap. 5. pag. 121.



quently to happen, that the colon stuffed up and swelling about the region of the spleen, where that intestine is inflected, resembles a scirrhus: for I have often observed that such tumours are much sooner resolved and cured, than could be possible for them if the disorder was seated in the spleen. It is moreover to be remarked, that in those years when intermitting fevers spread epidemically, then this tumour of the abdomen, which usually invades children after these fevers, affects the finger of a person touching like a scirrhus; but in those years when they are not epidemical, the distension rather appears flatulent<sup>m</sup>.

But it is evident enough that many more disorders may follow from hence, according to the different nature of the obstructed viscera, and injury of the functions thereon depending. But it is sufficient for us in this place to point out the general spring of them all.

## S E C T. DCCLIV.

**F**OR the rest, unless these fevers are malignant, (§. 753.) they dispose the body to longevity, and purge it from inveterate disorders.

But although all the disorders enumerated in the preceding aphorism sometimes follow after intermitting fevers, yet they do not always injure the body, but only when the fits being violent too much weaken the powers of a sudden, dissipate the most fluid juices by too profuse sweats, or by their too long continuance, enervate and relax the whole body, both with respect to its solids and

S 2

fluids;

<sup>m</sup> Ibidem.

fluids; for generally, if the patient uses a proper regimen of diet, and avoids a perverse method of cure, these fevers are easily tolerable, and usually do more good than harm. The celebrated author of these aphorisms assures us, that those long-lived people, of which he had interrogated many concerning this matter, own themselves to have been afflicted with a quartan fever in the flower of their age, which of all intermittents is usually of the longest continuance. Nor do I believe, that any physician who has considered this disorder, will deny that after quartan fevers, disturbed with no powerful medicines, but gradually resolved by a good diet in the spring-time, the bodies of such people have been afterwards found more firm, and much less subject to diseases than before. For these fevers have generally a compendium of that kind of life which Celsus<sup>n</sup> recommends to some people; for intense cold is followed with great heat; during the time of the paroxysms, the patients generally have an aversion to all sorts of food, to which they have often a strong appetite upon the intervening days which are free from the fever. But also by a long continued quartan the whole body is often emaciated, all the fat being dissolved and expelled by the urine and other emunctories, even as much as by mercury itself or sudorific decoctions; whence is obtained almost a radical change of the humours, by a resolution and expulsion of the old; whence the body is best disposed for the reception and restoring of new vital matter: and therefore the body is by a prudent regimen in these fevers disposed to longevity<sup>o</sup>.

IF

<sup>n</sup> Lib. I. cap. 1. pag. 20.

<sup>o</sup> Vide H. Boerh. Institut. §. 1062.



If now it be considered, that in the cold fit of intermittent fevers, the whole body trembles and shakes violently often for several hours, almost as much in the parts as are internal, as in the external; and the extremities of the arteries being protracted, propel the humours back into the larger trunks, as we are taught from the paleness; there may be thus an opportunity given for happily removing the obstructing matter, hesitating in the extremities of the arteries: and from hence it will not seem wonderful, that many disorders should be thus relieved or removed, which are not at all affected by other medicines; more especially, as soon after there follows a rapid motion of the humours through all the vessels, whereby the obstructing matter which was lodged in the viscera, being rendered moveable by the repeated concussions is further resolved. Hence the reason is evident, why these fevers so frequently remove the most inveterate disorders from the body, after they have been in vain attempted by other medicines. Medical history supplies us with many observations confirming this truth, but it may be sufficient to instance a few. Thus I have often seen patients, who being afflicted with autumnal tertians, extremely stubborn and spreading epidemically, which have been suppressed by an imprudent use of the bark before the morbid matter has been subdued by the fever, and which in these cases is generally lodged about the præcordia; here every thing has been tried in vain; the unfortunate patients being confined to their beds, discoloured with a jaundice during the whole winter, until they are seized with a vernal tertian in the month of February; by a few fits of which the obstructing humours lodged in the viscera have been dissolved and expelled by stool, under the appearance of a

thick, black, and most ill-smelling liquor, generally attended with the most happy effects. But in some, though not so often, the liver being long obstructed and wasted or dissolved by these foul humours, after disturbing them, pure blood has been discharged by the intestines; whence the greatest weakness, fainting fits, and death itself have sometimes followed, from the great quantity of blood discharged, either by vomiting or stool. Even Hippocrates<sup>p</sup> observes that a quartan is not only a safe disease, but also that it prevents other greater diseases; as we said before upon another occasion at §. 558: he likewise tells us, that those are freed from convulsions, who are invaded by a quartan<sup>q</sup>. A head ach which returned periodically for several years, I have known to cease during the whole time that the patient has been afflicted with a quartan. An inveterate pain of the right shoulder, I have known to disappear when a person has been seized with a quartan fever; with which the patient being fatigued for six months, took the bark with such success, that it removed the quartan indeed, but the pain returned again in the shoulder; after a month the quartan returned again, which being patiently endured till it went off of itself, the person afterwards lived free from the troublesome pain. The most violent palpitations of the heart, a disorder which too frequently remains unknown to us with respect to its causes, and is often no less stubborn to all remedies, was cured by a quartan in the celebrated mathematician De la Hire<sup>r</sup>; who afterwards lived healthy to the age of 78, confirming by example, that a quartan removes

<sup>p</sup> Epidem. 1. Charter. Tom. IX. pag. 88.

<sup>q</sup> Aphor. 70. Sect. V. *ibid.* pag. 242.

<sup>r</sup> Academ. des Sciences l'An. 1718. Hist. pag. 110.



removes inveterate disorders, and disposes to longevity.

Intermitting fevers are therefore often salutary, and unless their fits being protracted or doubled, incline them to the nature of continual fevers, they seldom prove fatal; unless in decrepid old people, or others extremely weakened from any cause. Thus Forestus<sup>\*</sup> testifies, that during the whole forty years of his practice, he had not known any one die of a tertian fever, unless it changed to be continual. Even the nature of tertians has been observed so opposite to that of the pestilence; that while all other epidemical diseases turned to the plague, tertians never degenerated into that distemper<sup>†</sup>.

## S E C T. DCCLV.

**H**ENCE therefore after a due examination of the whole history of intermitting fevers, (§. 746, to 755.) the proximate cause appears to be a viscosity or sluggishness in the arterial juices, and perhaps an inactivity of the nervous juice, both of the brain and cerebellum destined to the heart; after which supervenes some cause exciting a swifter and stronger contraction of the heart, and a resolution of the matter which stagnated.

In order to discover the proximate cause of an intermitting fever, one ought carefully to consider what alterations appear in the body when the fit begins. But if we consider the appearances men-

S 4

tioned

<sup>\*</sup> Tom. I. Lib. III. observ. 8. pag. 84.

<sup>†</sup> Van der Mye Morbis Bredanis, pag. 5.

tioned before at §. 749, it will be evident, that the first signs of the fits approaching are such as demonstrate the usual and equable influx of nervous spirits into the muscles to be disturbed; as we are taught from the lassitude, weakness, and trembling; and at the same time that the blood is not propelled with its due force and quantity through the vessels to the extreme parts of the body, as is evident from the cold fits, horror, rigor, paleness &c. And therefore it is not without reason, that the proximate cause is placed in the viscosity of the arterial fluids, and possibly likewise an inactivity or sluggishness of the nervous juice both of the brain and cerebellum destined to the heart. But by this viscosity or lentor of the arterial fluids, we do not understand an increased thickness and greater cohesion of the particles of the blood amongst each other, but an indisposition of any kind impeding its free motion, whether that impediment arises from a fault in the fluid to be moved, or of the containing vessels; or lastly, of the moving powers. But as the action of the voluntary muscles is weakened in the beginning of the fit, so that the patient can certainly foretell that the fever is at hand, from the sudden and unusual weariness and weakness; and as at the same time the motion of the heart itself languishes in such a manner, that though it is irritated by the venal blood to contract more frequently, yet it is with a weaker force, so that it cannot propel the blood with a due impetus into the arteries; as we are taught from the pulse being at this time of the fever quick, weak, and small; hence it seems very probable, that the nervous juice both of the brain and cerebellum destined to the heart is so sluggish, that it acts with a less efficacy upon the muscles destined to the exercise both of the voluntary and



vital motions. For if such a sluggishness be supposed to arise from any cause whatever, all those symptoms may follow, which are observable in the first stage of an intermitting fever; that is, in the cold fit. For the heart contracting with a less force, will propel the blood with a weaker impetus into the arteries; and these being less distended will also exert a less re-action upon their contained fluids, at the time when the heart is in its dilatation: and perhaps also from the sluggishness of the spirits from the cerebellum, the vital motion of the muscular fibres of the arteries is also diminished; and therefore the two causes moving the blood, languish, so that this fluid can hardly be drove to the extreme parts of the body, or at least it is not propelled with a force sufficient to excite the natural and healthy heat. But from the cold arising, the arteries being contracted, the resistance to the blood to be moved through them is increased, while at the same time the blood returning by the veins irritates the heart, which yet for the reasons before given cannot freely propel its blood into the arteries. Hence therefore that opinion appears to be sufficiently probable, which places the beginning of the fit of an intermitting fever and its proximate cause in a sluggishness of the nervous juice; which must in a little time be followed and attended with that viscosity of the arterial fluids, which proves an impediment to its free motion through the vessels, as we said before.

There are still many more circumstances which favour this opinion: for when in the beginning of the fit we see an obstruction formed, whereby the arterial blood cannot be propelled even to the extreme parts of the body with its due quantity and impetus, this must arise either from an imperviousness of the fluids to be moved, from a greater resistance

sistance of the vessels, or from a deficiency in the moving powers. But a person afflicted with quartan, was but a few minutes before the fit seemingly in perfect health, and is often deceived with false hopes of being free from the fever for the time; and therefore it is hardly conceivable that so sudden a change can arise in the blood, as to render it impervious almost in a minute of time, and much less is it credible, that a greater rigidity in the solids can arise so suddenly as to overcome the impulse of the fluids. It therefore only remains, that the cause of this sudden change must lie in the powers moving the humours through the vessels, or in that *impetum faciens* as it is called by Hippocrates, which we know to be very easily changeable, and from the slightest cause. Thus I have seen a healthy virgin frightened at the sight of a squirrel, to be immediately seized with the cold fit of a quartan, which afterwards continued the whole winter, till it happily went off by the warmth of the spring following: but after she had been free from the fever for two months, she had unfortunately a dead squirrel thrown into her lap by a mischievous lad, the fright from which occasioned many more fits of the quartan. In young infants convulsions are frequently observed at that time when the salutary fits of a vernal tertian begins, which is no obscure sign that the whole nervous system, which is so moveable in this tender age, has been disturbed from a change in the condition of the most subtle juice of the whole nervous system. I have known a tertian arise in the spring time in the middle of a salivation, when all the humours were dissolved by the use of mercury; so that there could be no prevailing lentor, the intermittent disappearing after the fourth fit. Another argument is, that the Peruvian bark, which is

infallible



fallible a remedy for all intermitting fevers, is likewise the most happily useful in hysterical and hypochondriacal diseases, arising from too great a mobility of the nervous system, and irregular motions of the spirits; and Sydenham<sup>u</sup> even assures, that it has been more especially useful in those cases, which have been attended with violent convulsions. Perhaps this may be the reason why intermitting fevers are observed to be more stubborn in people who have such weak irritable nerves; that they can scarcely be cured but by the Peruvian bark, which is at the same time of the most happy use by its corroborating virtue. But what more, violent commotions of the mind, and especially such as employ the whole mind, and take place in it a long time together, have sometimes cured intermitting fevers, by removing or altering this sluggishness of the most subtle juice; upon which the beginning of the cold fit seems to depend. Thus Fabius Maximus Quintus, being sent in battle against the Allobroges and inhabitants of Verban, was freed from a quartan fever by his attention to the sword<sup>w</sup>.

The most acute Borelli<sup>x</sup> places the first and immediate productive causes of the hot fit in the nervous juice; but he seems in a great measure to have indulged speculation too much, when he endeavours to determine what this alteration in the nervous juice is, and to explain the causes, from whence the return of the fits in intermitting fevers proceed; as I believe will appear plainly to everyone who attentively reads through that chapter. Indeed

<sup>u</sup> Dissertat. Epistol. pag. 519.

<sup>w</sup> C. Plin. Secund. Natur. hist. Lib. VII. cap. 50.

<sup>x</sup> De motu Animalium, part. 2. cap. 22. prop. 225. pag. 289, &c.

Indeed the symptoms observed seem to teach that at the time when the fit begins, the effects of this subtle fluid moved through the nerves into the muscles are altered; but in what manner this happens and from what causes, seems very difficult to explain. It is certainly best to proceed in discovering the causes of diseases, as far as we can be led by faithful observations, and the hitherto known structure of the body; but in other things we should rather confess our ignorance, than cloak it by feigning and playing with hypotheses, however ingeniously contrived.

But what has been hitherto said relates only to the first stage of an intermittent fever; (§. 749) which is soon after followed by another stage (§. 750.) in which there is a heat and redness, and the pulse appears larger and stronger; and therefore we know, that then the heart contracts more swiftly and strongly at the same time, and that the blood contained in the heart is drove with a strong force through the arteries to the extreme parts of the body; whence we infer a resolution of those humours which stagnated. In the cold fit of fever the venal blood, accumulated about the heart irritates that into more quick but weak contractions and therefore another cause is necessary either to increase the force of the heart, or remove that which diminished its force in the cold fit, whatsoever that may appear to be. But the greater lentor of the blood which arose from its stagnation about the heart, will be easily overcome, when the force of the heart being increased propels it more impetuously through the converging vessels whence will follow an attrition of the cohering particles against the sides of the vessels, and against each other, which will therefore produce a dissolution of the concreted febrile matter: for the  
same



the cause which prevents the concretion of the blood in a healthy state, seems best able when moderately increased, to remove the concretion once begun. But if so great a cohesion arises betwixt the particles of the blood during the cold fit of a fever, that it cannot be thus dissolved, then suffocation or death follows, as we said before at §. 749, which yet is very rarely observed to happen, and hardly ever but in such as are very old and extremely weak.

## S E C T. DCCLVI.

SINCE therefore this order of the stages (§. 749, 750, 751.) always takes place in an intermitting fever, it would therefore seem that what is able to remove the first stage (§. 749.) and the first cause (§. 755.) might be also able to remove the whole fit itself.

Since therefore it is evident from the course of the fit in an intermitting fever, that the cold shill, and the other symptoms which attend it, first invade the patient, and are afterwards followed with a febrile heat, which at length terminates in a sweat, with a remission of all the symptoms; therefore the cure of such a fever seems principally to require a removal of this stage, namely, the cold fit, and its first or proximate cause, namely, the viscosity of the arterial fluids, and the sluggishness of the nervous juice: for then the rest of the febrile symptoms will be prevented, as they never appear without these proximate causes have preceded. Upon this consideration is founded that excellent method of curing intermitting

mitting fevers, which we shall presently lay down at §. 761; namely, by filling the body with the aperient, and diluent liquors, that a sweat may be excited an hour or two before the fit is expected; namely, that thus the humours being attenuated and diluted, the viscosity of the arterial fluids may be prevented, the vessels happily kept pervious, and the humours moveable, while at the same time the febrile cold is prevented by moderate warmth attending the sweat. But in what cases, and with what cautions this method is to be put in practice, we shall declare hereafter. For it is a very bad practice, when physicians endeavour to remove or prevent the cold fit of an intermittent fever by the warmest aromatics; for there is great danger lest incurable inflammations should be thus produced, as the febrile heat which is about to follow after the cold fit is too much increased by these over heating medicines; concerning which, see what has been said before at §. 624. But the ancient physicians seem to have been of opinion, that this first stage of cold fit of intermittent fevers, ought to be prevented by exciting a moderate sweat, and great heat by warm bathing, frictions, &c. The Celsus<sup>y</sup> recommends placing of the patient in warm bath, about the time when the fit is expected, in order to cure the cold fit or chill fevers; for, says he, *Dandaque opera est, ut per tempus horroris in solio sit.* ‘Care must be taken to place the patient in the bath about the time of the shivering:’ and this he would have repeated with frictions in the subsequent fits. And he says, *Neque desistendum est, etiamsi horror redierit.* *Sæpe etiam pertinacia juvenantis malum corporis vincit.* ‘The

<sup>y</sup> Lib. III. cap. 12. pag. 142.



That the method is not to be laid aside though the cold fit returns; for often long continuance in the same method with the assistance of nature, conquers the disease <sup>z</sup>. But if the bath is found of no service after several fits, he orders the patient *ante accessionem allium edat, aut bibat validam aquam cum pipere: siquidem ea quoque assumpta calorem movent, qui horrorem non admittit*; to eat garlick, or to drink pepper with hot water before the accession; inasmuch as those being taken excite a heat, which keeps off the cold fit <sup>a</sup>. But how much a prudent use of warm aromatics may be of service in the cure of these fevers, when they are diluted with much water, will be made apparent hereafter. It is sufficient here for us to remark, that Celsus placed great hopes of a cure, in preventing the cold fit by exciting a heat. Hence in the cure of a quartan, he orders the patient, *Qua die febrem expectabit, surgere & exerceri; dareque operam oportet, ut in ipsam exercitationem febris tempus incurrat: sic enim sæpe illa discutitur*; ‘to get up and exercise himself upon the day when the fever is expected, and to use his endeavours to let the time of the fever fall out upon the height of his exercise; for by that means the fever is frequently shook off <sup>h</sup>.’

## S E C T.

<sup>z</sup> Ibidem.

<sup>a</sup> Ibidem.

<sup>h</sup> Idem cap. 15. Lib. III. pag. 146.

## S E C T. DCCLVII.

**M**oreover, as an infinite number of causes and those even slight, may produce the first stage or cold chill (§. 749.) of a perfectly intermitting fever (§. 727.) and its cause (§. 755.); and as great numbers of such causes arise, increase, and in a certain time may arrive to a considerable height in the body as happens in all the juices formed and separated throughout the whole habit; it is therefore the more difficult to distinguish out of such a number of possible causes, the real and true cause, than to contrive or imagine one that is possible; which being supposed or granted, a reason may be given for the periods or returns of these fevers, agreeable to the laws of our animal œconomy, which will appear to any one who examines into the case.

We come now to that which has tortured the reason almost of every physician, as being very difficult to explain; namely, why the fits in intermitting fevers return at certain periods, while continual fevers run through their whole course without interruption, from the beginning to the end of the disease.

Sydenham<sup>c</sup> was of opinion, that the difference betwixt continual and intermitting fevers consisted chiefly, in that intermittents performed the same thing at different and separate times, which a continual

<sup>c</sup> Sect. I. cap. 5. pag. 196.



continual fever performed by an uninterrupted motion :  
 and hence he judged about the same time to be  
 necessary to be employed for changing, subduing,  
 and expelling the febrile matter in an intermitting  
 fever, as in a continual fever. For as the most frequent  
 continual fever which happens, usually performs  
 its course within the space of fourteen days, in  
 which space are numbered three hundred and  
 thirty-six hours ; he therefore believed, that about  
 the same number of hours were employed by a  
 quartan fever, which endeavoured to throw off its  
 matter from the blood within the space of six  
 months. But although this great man seems to  
 have indulged himself in this opinion, when he  
 describes five hours and a half to each fit or pa-  
 roxysm of a quartan ; though very often they  
 hold the patient a much longer time ; yet he  
 answers in the mean time not only this, but also  
 another difficulty, when he remarks, that their  
 stay is sometimes observed longer, before this de-  
 puration can be obtained ; as he also observes,  
 that in continual fevers their stay is sometimes ob-  
 served longer from the morbid matter being less  
 easy to subdue, or from the perverse method of  
 cure, before this depuration can be obtained. Yet  
 he remarks <sup>a</sup>, that all this is to be understood  
 only of those fevers *Quæ statam quandam naturam  
 etque habitum naturæ sunt* ; ‘ which acquire a cer-  
 tain settled nature or habit :’ for there are many  
 fevers both continual and intermitting, which do  
 not extend to that period ; as when they arise in  
 very young patients of a good habit from some  
 slight error in the six non-naturals, and are soon  
 cured. But Sydenham in this place treats of au-

<sup>a</sup> Ibid. pag. 107.

274      Intermittent FEVERS. Sect. 75  
autumnal intermittent fevers, which are usually of  
longer duration and more difficult to cure, and  
which frequently spread epidemically at the same  
time with continual fevers.

But even the ancient physicians seem likewise  
to have made a sort of affinity betwixt continual  
and intermittent fevers. For after Hippocrates  
has told us, that the first insult of acute disease  
terminates on the fourth day, the second on the  
seventh, the third on the eleventh, &c. until he  
ascends with the number four or seven, he ar-  
rives at the sixtieth day (see concerning this what  
has been said concerning critical days at §. 74) and  
he at last subjoins the following words, *Fit autem*  
*& quartanarum constitutio ex hujusmodi concinnitate*  
‘ But also the constitution or progress of quartan  
‘ is made with an affinity to this kind of reckon-  
‘ ing.’ Galen in his commentaries <sup>f</sup> to this place  
observes, that as in continual fevers we number  
the days following each other without interruption  
so the fits are to be reckoned up in intermittents  
and therefore that the seventh fit in intermittents  
may answer to the seventh day in continual fevers  
and as the fourth day in continual fevers bears  
proportion to the seventh, so does the fourth fit  
of an intermittent with respect to the seventh. But  
as the seventh day is so often critical in continual  
fevers, so likewise the seventh fit usually termi-  
nates an exquisite tertian. But from hence Gale-  
concludes, that Hippocrates would be understood  
by the word affinity or concinity, to mean the  
order of the critical days; yet so that the termi-  
nation of quartan fevers is not limited to the  
number of days, but the number of fits or accessions

<sup>e</sup> In Prognostico Charter. Tom. VIII. pag. 666.  
<sup>f</sup> Ibidem.



ns. But since Hippocrates in the place last cited, makes the sixtieth day as the boundary of acute fevers, if we number sixty accessions of fits of a quartan, it will take up the space of six months, which a quartan usually occupies from the beginning of autumn to the spring next following. But (as we observed before) acute diseases, namely, those called extended (see §. 564.) do sometimes run out to a greater length; and the same also observed in quartans.

But there here remains a great difficulty, since the reason does not appear why intermitting fevers should perform this at several times, which is performed by a continual fever in one uninterrupted course. Whether or no the intermitting fever subdues and expels part of the febrile matter from the body by every paroxysm, or whether all that matter being expelled or subdued which is present in the same fit, more of a certain kind is renewed which is present in the same space of time, capable of repeating the fit? These indeed seem to be very subtle speculations, and which ought to be enquired into with the utmost care, as far as faithful observations and just reasoning will conduct us, in matters of this obscurity.

Sydenham<sup>s</sup> has observed, that in an acute continual fever, which by a just treatment was used to go off with a moderate sweat about the fourteenth day, if purges or clysters were unseasonably used, the patient will perceive a fallacious relief, and sometimes even seem to enjoy a perfect absence or intermission of the fever; but in the mean time the febrile matter not being rightly evacuated by the critical sweat, a new fever was usually kindled again after a day or two, which

ran through other fourteen days like the former and required the same method of cure. It is no uncommon thing for imperfect crises to happen in acute diseases, whereby part only of the morbid matter is evacuated; from whence after some days intermission of the fever, a new one is kindled again, till the patient is perfectly freed by another critical evacuation following: for that several crises sometimes happen in one fever, is evident from what was said before at §. 587. of a crisis, and at §. 741. of critical days. It is therefore evident, that the febrile matter being subdued or expelled only in part, the fever will return again after it has ceased for a time; and therefore it is not repugnant to what we know happens in diseases, if we suppose the fits of intermitting fevers to return from a like cause. But it is to be observed, that these returns in acute diseases terminated by an imperfect crisis, never keep up to any certain period of time, like what we observe in the fits of intermitting fevers; although they commonly happen upon a day which is one of the critical number, as we said at §. 727.

Moreover, though part of the morbid matter may be subdued and expelled at each paroxysm, yet there is no reason appears why the quantity or activity of what remains, should be increased in the interval betwixt the fits of each kind of intermittents, so that in a quotidian fever, for example, the fit shall return after twelve hours, and in a tertian after thirty-six hours, &c. But then by giving the bark we all know, that the future paroxysms are prevented without any sensible evacuations. For although, as we shall declare hereafter at §. 767. some would have the Peruvian bark to be only capable of safely curing intermitting fevers,



fevers, when after the use of it a sensible evacuation follows by stool, sweat, or the like; yet it cannot be denied, that the fever ceases by the use of the bark before these evacuations happen, and that therefore the cure of the intermitting fever cannot be ascribed in this case, to an expulsion of the morbid matter.

The like difficulties seem to arise, if we suppose the present morbid matter to be subdued or evacuated at every fit, and that new matter accumulated in the intermediate time betwixt the fits, is the only cause and spring of the paroxysm next following. Certain we are, that people afflicted with quartans, find themselves perfectly well a quarter of an hour before the fit; and yet at the same time that morbid matter must be present, which soon after excites such great disturbances.

But although it cannot be denied that corrupt humours, indigested food, and many other causes enumerated before at §. 586. may excite a fever; and that therefore from the like causes applied to the body at certain intervals of time, they thence may seem able to produce various fits of intermitting fevers; yet these alone will not be sufficient, but something more is required, as will appear to every one who considers the following paragraphs. When a patient is afflicted with an autumnal tertian, and has been free from it for some days, if such a patient eats a large quantity of bacon, dried hard with salt or in the smoak, or if he unwarily exposes himself to the injuries of the weather, the fever very often returns again, and observes its former periods. But even one afflicted with a quartan in the spring time, from the like errors in diet when the fever is off, may suffer a return of the quartan. There is

therefore in these patients a latent and various disposition, which being stirred up by the same causes produces in one patient a tertian, in another a quartan fever; and therefore the differences of the intermittent fever in such people does not arise from the accession of a new cause, which is supposed to be the same in both, but from a previous disposition differing in each person. It is therefore evident, that a certain matter being accumulated in the intermediate time betwixt the fits of intermittent fevers, may perform the part of an exciting, or an occasional cause, but that the pre-disposing cause is altogether different from this. - See what has been said concerning the pre-disposing and occasional, or exciting causes, in the comment to §. 11, and 586.

But that this pre-disposing cause, whatever it may be, limits the various kinds of intermittent fevers is confirmed from what we observed in the reduplication of the fits. For whether the febrile matter, namely, the occasional and exciting cause produces the reduplications of the paroxysms by its excess or too great activity; in which case Sydenham<sup>h</sup> has remarked, that the adventitious fit anticipates the time of the original; or whether the patient's strength being too much weakened is unable to expel from the body, or subdue and render inactive that which excited the fit, and which causes a repetition of it, in order to subdue what remains; in which case the adventitious fit follows after, and is milder than the original, as the same author observes; yet in either of these cases the new paroxysms follow the nature of the original, and in a double tertian, for example, all the paroxysms are truly tertian fevers, which are observed

<sup>h</sup> Sect. I. cap. 5. pag. 96, 97.



observed to correspond to each other in the hours of their accession, every other day in their anticipation or retardation and various symptoms. The same is also true of triplicate quartan fevers. It is therefore again evident, that the exciting or occasional cause, though often renewed and rendered active in the same interval of time, does yet produce the same intermitting fever, which is determined by the pre-disposing cause.

When therefore an autumnal tertian degenerates into a quartan (for vernal ones seldom or never degenerate) it seems very probable, that this does not happen from the exciting causes being increased, or rendered more active by a longer interval of time, but from a change in the pre-disposing cause itself. Hence again it is evident, that these pre-disposing causes are different in every kind of intermitting fevers, and yet that they have a great affinity, since they are frequently observed to change one into the other.

But what this pre-disposing cause is in intermitting fevers, and whether it resides in the solid or fluid parts of the body, or in both, and wherein consists the particular difference with respect to these causes of the several kinds of intermitting fevers, seems very difficult to explain. For these causes may lie so much concealed in the body, as not to manifest themselves by any sign, until the occasional or exciting cause puts them into action. For when a person has been a long time afflicted with a quartan, and is afterwards cured so as to be perfectly well in every function, yet either from over feeding upon food of difficult digestion, by hard drinking, the cold air, passions of the mind, &c. there is frequently occasioned a relapse of the disease. This has been observed by Cel-

fus<sup>1</sup>, where he treats of the cure of a quartan  
 and gives the following admonition; *Si febris qui  
 evit, diu meminisse ejus diei convenit; eoque vitar  
 frigus, calorem, cruditatem, lassitudinem. Faci  
 enim revertitur, nisi a sano quoque aliquamdiu tu  
 metur.* ‘ If the fever ceases, the day ought to be  
 ‘ a long time remembered, and from that time to  
 ‘ avoid the cold, heat, crudities and lassitude  
 ‘ For the disease easily returns, unless the patient  
 ‘ lives for some time as if he was afraid of it  
 ‘ after being cured.’

There have been various opinions of authors  
 upon this subject. Galen accuses the bile as the  
 cause of a tertian fever; and phlegm as the cause  
 in a quotidian fever; but the cause of a quartan  
 fever, which often continues so long, he makes  
 to be an atrabiliary humour, the seat of which  
 he supposes to be fixed in the spleen, as appears  
 from several passages of his writings. Helmont  
 after Fernellius, places the seat of the cause of in  
 termitting fevers about the stomach, duodenum  
 and pancreas. Others again have sought for it in  
 the abdominal glands, &c. But I believe it will  
 appear evident from what has been said, that they  
 did not distinguish the occasional from the pre-dis  
 posing causes; and that even sometimes they have  
 esteemed the alterations of the humours produced  
 by the fever, for the cause of it.

But if we consider what has been said at §. 755  
 and 756, it will appear sufficiently probable, that  
 the pre-disposing cause is rather seated in the most  
 subtle fluid, or in the smallest vessels through  
 which that fluid moves, or else in the common  
 origin of them all, the encephalon. For the first  
 appear

<sup>1</sup> Lib. III. cap. 16. pag. 147.

e Febribus, cap. 3. N<sup>o</sup> 18. pag. 748.



Sect. 757. Intermitting FEVERS. 281

appearances of the invading paroxysm teach us, that there is some alteration made in these parts: for in infants who have the nervous system so very tender and irritable, convulsions frequently arise; and that only sudden and violent passions of the mind have sometimes produced, and again removed intermittent fevers. But how much passions of the mind affect the spirits and nerves, and what alterations they can produce in the encephalon, is known to every body. The Peruvian bark, which is of so great use in strengthening the nervous system, and allaying inordinate motions of the spirits, as well as subduing the violence of all intermittent fevers, is another argument in favour of this opinion, even though it produces no sensible evacuations; and therefore this medicine seems to act only upon the pre-disposing cause. Again, palsies, epilepsies, and other diseases of the nervous system, are most happily cured by intermittent fevers. Inunctions of the spina dorsi, with the most penetrating aromatic ointments, have very frequently proved useful in the cure of intermittent fevers (as we shall declare hereafter at §. 768.) the efficacy of which ointments, is likewise well known in other nervous diseases.

This opinion seems also to be confirmed by the observations of Sydenham<sup>1</sup>, which we mentioned before at §. 751; namely, that in one kind of epidemical intermittent fevers, the fits came on without a rigor and shivering; but the patients were afflicted perfectly with the same symptoms as if they had been taken with a true apoplexy. In that case the cause of the fever being stronger, seems not only to have disturbed the functions of the encephalon, but likewise to have suppressed them

<sup>1</sup> Epistola 1. Resp. pag. 387.

them entirely for a time. The fever concealed under this mask, was discovered by Sydenham from the urine being intensely red, and depositing a lateritious sediment; in consequence of which, he happily cured it by the use of the bark; but he observes, that evacuations recommended for the cure of an apoplexy, were here prejudicial.

But now as in the nerves serving for the motion of the muscles, or in the origin of them, or in the very subtile fluid moved through them, such a change may happen in a certain space of time, as to cause the trembling, weakness, weariness, &c. which attended in the beginning of the febrile paroxysm; so it seems probable, that the same thing may take place in the sensitive nerves, and then the most troublesome pains will afflict the patient at certain periods. I was lately consulted by a certain nobleman for a pain in one side of the head, which returned every day at the same hour, continued to afflict the patient severely for eight hours, and then gradually decreasing, it at length perfectly vanished. Epithems and blisters were applied to the head, epispastics to the feet, with purges, &c. without any use; but upon exhibiting the Peruvian bark, this most troublesome disorder immediately ceased; but when the pain began, he pointed out the part first affected, to be where a branch of the fifth pair of nerves comes through the foramen above the orbit, and from thence by degrees the pain spread itself throughout the whole half of the head; but in the mean time no alteration was observable in the pulse while the pain attended, the patient being perfectly well in all other respects. More cases of the like nature have occurred to me, but more especially the following very remarkable one. A healthy strong middle aged man, was daily invaded



vaded at the same hour with a troublesome pain in the place before mentioned, above the orbit of the left eye, where the nerve passes out through a foramen of the os frontis; after some time the left eye began to look red, and to run down with tears; afterwards he had a sense as if the eye was ready to be thrust out of the orbit, with such a pain as made him almost raving. After some hours all these symptoms ceased, and nothing at all appeared altered or amiss in the eye. I ordered a vein to be opened, gave cooling purges, applied cupping-glasses frequently to the nape of the neck, with blisters, &c. but all to no purpose. But, to be better acquainted with this wonderful disorder, I took care to be present with the patient at the time when he knew his pain was about to return; and though I found all the symptoms before mentioned, yet I could perceive no alteration in the pulse by examining at the wrist; the patient observed while I sat by him, that he perceived a violent pulsation in the larger canthus of the eye. I therefore applied the end of my little finger to the artery, which being pretty considerable, runs down about the greater canthus, while at the same time I felt the pulse at the wrist with my other hand; and thus I plainly perceived, that the artery in the canthus of the eye, beat much swifter and stronger than it is naturally used to do. I therefore judged the patient to be afflicted with an intermitting fever, but such as was topical or confined to a particular part; and accordingly I happily cured it by exhibiting the Peruvian bark: and from this case I learnt afterwards, to make use of the same medicines in other disorders of the like kind.

It may be therefore asked, whether a true intermitting fever does not sometimes occupy a particular part only without invading the whole body? It was proved in the commentaries to §. 371 where we defined an inflammation, that such a topical fever really obtains as disorders the part affected only, without injuring the whole body; the alteration of the pulse being observable only in the arteries of the part inflamed. And what has been here said plainly demonstrates, that sometimes the same thing is true also in intermitting fevers. But medical history supplies us with more observations of the like kind, which seem to confirm this. Thus a person was every day taken for the space of six weeks about seven o'clock of the morning, with a violent coldness in the right arm, the rest of the body preserving its natural heat: by eight o'clock of the morning there was a rigor and trembling of the hand and fingers; after three hours more a violent heat followed; but by twelve o'clock all the symptoms disappeared, and returned again the next day in the same order<sup>m</sup>. A kind of anomalous intermitting fever followed after a tertian had been changed by very hot medicines into a most acute fever; which anomalous intermittent afflicted the virgin, who was about twenty-two years old, several times in a day. In this case some doses of the Peruvian bark were given, and afterwards among many other anomalous symptoms, one leg or other was observed every day at the same hour to tremble, afterwards grow hot or sweat; while in the mean time no such disorder appeared in the rest of the body<sup>n</sup>. Another case of the like kind may be also read in another volume of the same essays<sup>o</sup>.

But

<sup>m</sup> Miscell. curious. dec. 71. ann. 3. pag. 381.

<sup>n</sup> Medical Essays, Tom. I. pag. 295, 296.

<sup>o</sup> Tom. II. pag. 302.



But this pre-disposing cause of intermitting fevers, which from what has been said is probably seated in the most subtile fluid, in the smallest vessels which contain it, or their origin, may there be put into action by various concurring causes. For a sudden admission of external cold, the taking of indigestible food, violent passions of the mind, disturbances raised in the body by purges, and many other things of the like kind may have this effect; as every physician knows from daily observation. Thus Sydenham <sup>p</sup> has remarked, that purging is required after the cure of autumnal intermitting fevers; and that this being neglected, either a return of the fever or other diseases often more dangerous, are to be feared: but at the same time he cautions, that a paregoric should be given going to sleep, after the operation of the purge is over; by which means a return of the febrile paroxysm is prevented from arising from the disturbance excited, even by the mildest purges.

But whether or no does this pre-disposing cause require another occasional cause to reduce it into action? This is certainly a matter of doubt; tho' it cannot be denied, that the pre-disposing cause may be excited by accessory causes, even at a time when it seems quiet and inactive. For when a healthy person is taken with a quartan fever, which hath as yet ran through but few paroxysms, and those not violent, having hitherto produced no great alteration in the solid and fluid parts of the body; in that case, the most expert physician cannot discover any thing amiss just before the approach of the fit. Moreover, those occasional causes, without the action of the pre-disposing cause, do not seem able to excite the fit at any time,  
but

but only to limit or fix its returns; whence Celsus, as we said before, orders, that those who have been cured of a quartan should be careful of themselves on those days when the fit is used to return; thus intimating, that the danger of the return is not so much to be feared upon the other days. I have observed a remarkable case which happened in confirmation of this. A person had been afflicted with a quartan the whole winter, and the fever by degrees went off by the warmth of the spring following without the use of the bark, leaving the body in perfect health. The patient now had been free from the fever for five months, when in fishing with his friends, some of them for the sake of mirth threw the net over him, after it was dragged to the shore. The patient soon after grew cold, began to tremble, and had a fit of the intermitting fever, which afterwards returning every fourth day, held him in that manner for several weeks. But as this patient had been admonished to take care of himself for the future upon those days, on which the fits were used to return, although the fever was now cured, he carefully observed the caution for three weeks; and upon marking every third day in his almanack with an asterisk, he by that means found, that this misfortune befel him upon the day on which the quartan would have invaded, if it had still continued.

It seems from hence, that we may conclude, the pre-disposing cause becomes fit to be put in action at various intervals of time in various intermittents, and often at a minute's warning; and it likewise appears to be frequently put in action, even though the most diligent observation can discover nothing in the body, capable of performing the part of an occasional cause. Whether or no therefore is  
this



this pre-disposing cause itself able to excite the fever? or whether the cause capable of exciting that only in a determinate space of time lies, concealed in the same place with the pre-disposing cause? We are certain that if the last be admitted, no body can distinguish the exciting from the pre-disposing cause; since both of them are seated in the most subtile fluid, in the smallest vessels, or in the common origin of them; and manifest themselves only from their effects.

It is indeed true, that many changes happen in the human body in a healthy state in a determinate space of time; thus hunger, sleepiness, watching, &c. are observed in many people to keep their usual hours: it also seems very probable, that the humours separated from the blood, as the bile, pancreatic juice, saliva, mucus, &c. may be collected together in certain determinate quantities within a limited space of time; there are also many more things of the like kind which may be supposed, in order to explain how some occasional cause being renewed, should put in action the pre-disposing cause of the fever after a certain determinate space of time. But if we thoroughly examine such hypotheses as are founded upon these principles, it will be sufficiently evident that they do not agree, or conform to the appearances observed in intermitting fevers. For although whatever is lodged in the stomach, intestines, or adjacent viscera, be expelled by vomits or purges, the intermitting fever is not cured by that means; but, on the contrary, it frequently becomes more stubborn and difficult to cure by such a treatment, as Sydenham<sup>a</sup> has remarked. But what is more, even a purge given too early to a patient after recovering

<sup>a</sup> Sect. I. cap. 5. pag. 114.

covering from an intermitting fever, before a due time has elapsed after the fever, causes it to return worse than before<sup>r</sup>. And although, when an intermitting fever ceases by the use of the Peruvian bark, some may believe, that then the matter is accumulated which used to discharge itself by sweats and other evacuations after each paroxysm (from whence they may judge, purging medicines to be useful;) yet Sydenham<sup>s</sup> cautions us, that there is danger of a return from the slightest purge, and even from an emollient clyster of sugared milk. When a quartan continues on its course, exactly keeping its returns, thro' the middle of a salivation, and when a vernal tertian arises in the midst of a salivation, as I have observed it, I must confess myself not to have been able to conceive how any fumes or irritating matter should be collected in the body in a certain space of time so as to excite the fits regularly under so great disturbances of the body, and while all the humours were dissolved by the force of mercury.

From all this therefore we may conclude the opinion to be probable, which places the cause of intermitting fevers in the most subtile fluid, in the vessels which contain that fluid, or in the common origin of them both, the encephalon; and that this cause may be brought into action in a certain space of time: but in the mean time there appears no necessity for supposing a latent fomes to be collected in the interval betwixt the paroxysms, in order to put the latent cause of the fever into action; since observations teach us, that frequently a little before the fit there is nothing at all to be observed amiss either in the solid or fluid parts of the body,

nor

<sup>r</sup> Ibid. pag. 114.

<sup>s</sup> Epist. 1. Respons. pag. 386.



nor does there appear any sign of injury to the functions, tho' they are almost all of them soon after disturbed.

But what the alteration is in this most subtile fluid in the smallest vessels, or in the encephalon, which constitutes this cause of intermitting fevers; and why it is renewed or put in action only at certain periods or intervals of time, I must confess myself, with Sydenham<sup>1</sup> and other most eminent physicians, to be perfectly ignorant. I have therefore laid down only such principles as seem to be taught us by observations or facts; and if I am under any mistake, I am so far excusable at least, as I profess myself ready to be taught more or better, not only in these, but in all other particulars.

But although this latent cause of the intermitting fever, does not seem to require the collection of any fomes; in order to renew the paroxysm at a certain interval or a determinate space of time; yet it cannot be denied, that the morbid humours collected may occasion those latent causes to afflict the patient more violently. Thus in autumnal tertians, when corrupt bile is lodged in the first passages, after that is discharged either spontaneously or by art, the next fit usually becomes much milder; and therefore these corrupt humours may concur with the latent cause, which yet might be capable of acting of itself without them. For if indigestible food, sudden cold, weariness, &c. may excite the cause into action, after it has lain long time dormant, why may not its power or efficacy be increased by the same means, at the time when it is of itself able to act? whether or

no does the retardation or anticipation of the fits always arise from the concurring causes? at least it hardly seems to be thus. It is indeed true, that about the time when the paroxysm usually invades, the latent cause is in a manner more irritable, if that expression may be allowed, as is evident from what has been said before; and therefore it does not seem altogether improbable, that from a collection of foul humours, the fit may be excited before its usual time: but yet sometimes also the paroxysms arise sooner or later in fevers, where there are no signs of any cacochymy discoverable, and in such a manner as to appear before or after the usual time at every return; and therefore this regular anticipation or retardation of the fit, should be rather ascribed to the latent causes of the intermitting fever itself. The truth of this is confirmed by what Sydenham<sup>u</sup> observes, namely, *Dum ingens agmen febrium intermittantium autumnalium simul invaderet, illarum paroxysmos plerumque una eademque diei hora contingere, accessionibus, nunc prævertentibus, nunc postponentibus, simili plane modo, atque eodem tenore, nisi quod accidere queat, ut ordo ille, medicamentis adhibitis, quæ retardandi vel præcipitandi vi pollent, in quibusdam corporibus immutetur vel pervertatur.* ‘ That when great numbers  
‘ of autumnal intermitting fevers invade at the  
‘ same time, their fits for the generality happen  
‘ upon one and the same hour of the day; but  
‘ sometimes the fits invade before or after that  
‘ hour, perfectly in the same manner, and in the  
‘ same course, except that the order may be per-  
‘ verted and changed in some habits by the use of  
‘ such medicines, as have the power of retarding  
‘ or accelerating the fits.’ For certainly it hardly  
feems



seems credible, that morbid humours should be collected precisely in the same interval of time, in so many patients differing in age, sex, way of life, habit, and the like, in such a manner, that the renewal of the paroxysms may be ascribed to this cause. Hence also Galen <sup>w</sup> observes, that an anticipation of the fit only, ought not to be esteemed an increase of the disease; which yet must always be the case if the fits return sooner or at shorter intervals, from an accumulation of morbid humours. For thus he expresses himself, *Nam anticipatio sola per se ipsam non est sufficiens signum incrementi, quod sæpe morbi proprietatem consequitur potius, quam quod per ejus incrementum fit: quum & quartani, & tertiani, & quotidiani circuitus quidam usque ad integram solutionem ita anticipare visæ fuerint.* ‘An anticipation only, is not in itself a sufficient sign of increase, as it often proceeds rather from the nature of the disease than from an increase of it: and this more especially, as quartans, tertians, and even quotidian fevers, have been seen to anticipate the times or their invasion in this manner, even till the disorder has been perfectly removed.’

An intermitting fever seems therefore to arise from an epidemical contagion, or material cause affecting the spirits, nerves, or their common origin, in such a manner as to cause a return of the fits at stated times. But yet it must be owned, that by the fever raised, morbid humours which before existed, or else formed or collected during the fever, are expelled from the body, and a great many obstructions in the viscera are removed,

U 2

and

<sup>w</sup> De Crisibus, Lib. I. cap. 3. Charter. Tom. VIII. pag. 378.

and therefore these fevers often exercise the virtue of medicines with respect to other diseases; and yet this fever seems capable of continuing without those diseases, as long as that impression or affection of the spirits shall remain. It may be asked therefore, why such intermittent fevers appearing without any remarkable defect, either in the solid or fluid parts of the body, ought not to be termed fevers of the spirits? At least Galen \* gives us the following observation upon this head: *Distinguere autem oportet in singulis egrotantibus, primum quidem si sine loco affecto febris sit, ex humorum putredine, vel solo spiritu alterato.*

‘ But the physician ought to distinguish first in  
 ‘ each patient, if the fever begins without affect-  
 ‘ ing any particular part, from a putrefaction of  
 ‘ the humours, or from an alteration of the spi-  
 ‘ rits only.’

But we have already seen, that this character of epidemical impression, may lie dormant in such a manner upon the spirits, as not to manifest itself by any sign; and yet that it may be afterwards stirred up by some occasional cause, and again by its force excite new febrile paroxysms, which is here principally to be remarked; and this even without renewing the occasional cause, which stirred up the dormant or inactive impression. Hence again the morbid impression of the intermittent fever, seems by degrees to lessen, so that at length it can no longer operate upon the nerves; and yet that this impression continues a long time capable of being stirred up again, so as to renew its action by many other different causes.

\* De Crisibus, Lib. II. cap. 7. Charter. Tom. VIII pag. 416.



The Peruvian bark seems to act immediately upon this morbid impression, as it so often cures intermitting fevers without any evacuations or any sensible alteration; yet so that unless its use be often repeated to entirely remove the disease, it only suppresses it, or causes a truce for a time, as we shall observe more at large hereafter at §. 767.

But amongst those causes which usually excite that dormant impression of the disease, which is not yet perfectly extinguished, cold is observed to be more powerful than the rest. For we are certain, that a violent and sudden cold applied to the body, makes a person tremble, look pale, and grow stiff; and therefore many symptoms are thus excited, which attend in the beginning of an intermitting fever (§. 749.) Even Celsus seems to hope for the change of a slow continual into an intermitting fever from cold, as we said before upon another occasion in the comment to §. 589. For when there is no room to relieve such a fever by food or medicines, he would have the physician endeavour to change the disease, as the only means left. Therefore, says he, *Sæpe igitur ex aqua frigida, cui oleum sit adjectum, corpus ejus percutiendum est; quoniam interdum sic evenit, ut horror oriatur, & fiat initium novi motus exque eo, tum magis corpus incaluit, sequatur etiam remissio.*

The body is to be often bathed in cold water mixed with oil, because sometimes by this means a horror is produced, and a new motion is begun in the body, from whence as the body afterwards requires a greater heat, there follows also a remission of the fever.\* Perhaps this may be the reason why vernal intermittents end sooner as they are opposed by the summer heats; but autumnal fevers are more obstinate from the con-

tinual increase of the cold; and quartan fevers are almost entirely cured by the warmth of the spring only.

But this morbid impression producing intermittent fevers, is often so strongly fixed, that it can hardly be removed by any remedies. Its activity may be indeed suspended for a time by giving the bark, yet so that it will always return again afterwards. This has been observed by Sydenham<sup>y</sup>, who says, that in this case it is the part of a prudent physician, not obstinately to insist upon the use of the bark, but rather to attack the fever by other medicines. I have known a quartan continue for several whole years, ceasing at times for several weeks, either spontaneously, or by the use of the bark, but returning again afterwards. N. Massa<sup>z</sup> saw a woman at Rome who had been afflicted with a quartan for twenty-two years. But such obstinate fevers of this kind as exceed the course of a year, I do not remember to have met with, unless in cacochymical bodies, where the viscera, especially those of the abdomen, were obstructed; whence there almost constantly attended a swelling of the abdomen, with a yellow colour of the skin, &c. but then as we said before, the fever may be excited again after it is dormant when bacon or the like indigestible foods are taken in large quantities; and it seems not improbable that something of the like kind occasions the prolongation of the course of these fevers. For if the body is cacochymical before the intermittent fever began, and the viscera are obstructed, or if the like disorders are produced by the fever itself (see §. 753.) in that case the due preparation of the ingested

<sup>y</sup> Epist. i. Responsoria, pag. 385.

<sup>z</sup> Etmüller. Tom. II. pag. 309.



digested aliments will be deficient; and therefore  
 the like disorders may thus arise from a deficiency  
 in the digestive powers, as do those which happen  
 in healthy but weaker people, from taking food  
 of too difficult a digestion. Hence the reason is  
 evident why in such a case an intermitting fever,  
 which in its own nature ought to lessen, at length  
 increases, or else being dormant is excited again,  
 and thus runs out to a long space of time. Per-  
 haps also this morbid impression is more diffi-  
 cultly expunged, as it has been of longer con-  
 tinuance.

It may be therefore asked, why the fits some-  
 times are doubled, as for example, when a latent  
 tertian fever becomes active in its own nature on  
 every other day. Certainly this is from the same  
 cause, namely, that unknown epidemical impres-  
 sion, which both produces the tertian, and may  
 make it fall out upon another day. Moreover, it  
 seems very probable, that even upon the days  
 which are free from the fits, there is a like dispo-  
 sition, which is perhaps not capable of coming  
 into action of itself, yet it may be excited by the  
 accession of other causes, and then it may renew  
 the fits by its own proper force, though the causes  
 are absent which first excited it into action; and  
 this after the same manner as an intermitting fever  
 ceasing spontaneously, is renewed again by the  
 like causes, as we said before. But there are  
 many arguments in favour of this opinion: Thus  
 great errors committed in the diet, not only  
 produce more violent fits of a quartan, but also  
 turn a simple quartan into a double or triplicate  
 one, as we are taught from daily observations in  
 practice. Autumnal fevers, in which the offend-  
 ing matter is usually more copious and stubborn,  
 than can well be subdued and expelled by the

fever raised by nature much more frequently double their fits than vernal fevers, in which their reduplications are seldom observed: even from the same cause, such fevers often exactly resemble the nature of continual fevers, from the prolongation and reduplication of the fits, as we said before at §. 748. But in the mean time, as we have already observed, such redoubled fevers retain the nature and disposition of their original fits; so that a triplicate quartan consists of three distinct quartans, a double tertian is composed of two distinct tertians, &c.

From what has been hitherto said, therefore, we may conclude, that the distinct and determinate characteristic, or primary morbid impression of intermitting fevers, lies concealed in the nervous spirits, in the nerves themselves, or in the common origin of them both; and that this impression may be irritated by morbid humours collected together, so as to produce stronger and more violent fits, and that it may be excited even into action by the same causes when dormant; yet that it does not always require a focus or collection of morbid humours, to be made in the interval betwixt the two fits, in order to put it into action, but that it is capable of renewing the fits by its own proper force. At the same time it also seems probable, that this impression has the same disposition to act upon the intermediate days betwixt the fits; and that by the accession of other causes it may be reduced into action; and besides this, it may likewise continue to act when those causes are abolished.



## S E C T. DCCLVIII.

**T**H E cure therefore requires us to make use of medicines which are aperient, saline, alkaline, aromatic, minerals, diluents, soft oils, with heat, motion, fomentation, and frictions, applied at the time when the fit is off, or in the first stage when the fit is going to begin (§.749.)

In the cure of intermitting fevers, the first thing to be determined is what the patient's diet ought to be; but by the term diet we understand a due moderation of the six non-naturals; the air, food and drink, sleep and vigilance, exercise and rest of body, passions of the mind, and such things as ought either to be retained or expelled from the body <sup>a</sup>. But since it appears from what has been said before, that a cold air is injurious to such patients, and that the fever is thereby often renewed, after it is once allayed; therefore it will be convenient to have the air of such a moderate warmth as is usual in the spring time, which may be easily procured even in the midst of winter by the use of fires. But the food and drink ought to be such as we have described before at §. 599, but with this difference, that for intermitting fevers the stronger sorts of food and drink ought only to be given when the fever is perfectly off betwixt the two fits, when almost all the functions are restored to their healthy state: and this is to be more especially observed, as the interval is longer betwixt the fits, especially if it happens in the

<sup>a</sup> Vide H. Boerh. Institut. §. 745.

the winter time, (see §. 602. N<sup>o</sup> 5.) Moreover, as these fevers are sometimes of long duration, more especially quartans, it is highly necessary to keep up the patient's strength, that, in the words of Celsus <sup>b</sup>, *Ut, quod diu sustinendum est, corpus facile sustineat.* 'The body may be enabled easily to support what must be sustained for a long time.' Hence the reason is evident, why more nourishing food and drink is convenient in these than in continual fevers. But in the mean time all fat meats, every thing salted and dried in the smoke, and the like, ought to be avoided; as the body would be oppressed by the more crude chyle formed from thence; and as even from such foods taken in too great a quantity, a fever has been observed to be excited even in healthy bodies, (see §. 586. N<sup>o</sup> 1.) At the same time care must be taken not to give food in these fevers about the time when a new fit is expected, for then most of the functions of the body being disturbed or injured, we cannot expect a due assimilation or digestion of the nourishment taken in. This has been well observed by Hippocrates <sup>c</sup>, when he says, *Quoscunque ægrotantes non continenter febres detinent, sed intermittentes prebendunt, his post accessionem cibi exhibendi; conjectura facta, ne quando a recenti alimento, sed jam concoctis cibis, febris ingruat.* 'Whatever patients are ill of intermitting and not of continual fevers, in such, nourishment must be given after the accession of the fit, the estimate being made as near as possible; lest the fever should come on when the nourishment is lately taken in, instead of when it is perfectly concocted.' Moderate exercise of body betwixt the

<sup>b</sup> Cels. Lib. III. cap. 15. pag. 145.

<sup>c</sup> De Affectionibus, cap. 16. Charter. Tom. VII. pag. 637



the fits is of great use, because thereby the assimilation of the ingested aliments, and the natural excretions by stool, urine, and perspiration, are happily promoted. Hence Celsus <sup>d</sup> orders in the cure of a quartan, after the patient has sufficiently rested, to walk the next day, to use exercise, inunctions, and strong frictions; he even believed it would be useful, *Daretur opera, ut in ipsam exercitationem tempus febris incurrat, sic enim sæpe illa discutitur*; ‘ for the patient to endeavour to let the time of the fit fall within the time of the exercise, for by that means the fit is often shook off.’ But when the patient’s weakness forbids exercise, he would have carriage made use of; but if that also is not tolerable, he recommends frictions. But the sleep should be longer than usual, that the body may be refreshed by rest after being fatigued and shook by the febrile paroxysm. But that the passions of the mind ought to be moderate, is evident enough.

Vernal intermitting fevers usually give way with ease, only to a due regimen of the six non-naturals, even without the assistance of other remedies, as we are taught from daily observation. Hence also Sydenham <sup>e</sup> would have these fevers left to their own disposition, unless the patient importunes the physician for medicines; for he had never seen any patient perish of a vernal intermittent; and therefore he rather chuses to do nothing; and more especially he condemns the use of evacuating medicines, since by these he had observed intermittent fevers rendered much more obstinate.

<sup>d</sup> Lib. III. cap. 15. pag. 146.

<sup>e</sup> Sect. I. cap. 5. pag. 103.

But in autumnal intermittents medicines are more especially necessary ; but then they are to be given at no other time of the fit, than when the fever is off. Moreover, as the fit of every intermitting fever is distinguished into three stages (see §. 749, 750, 751.) therefore a difference in the cure is necessary according to each of these. But in this aphorism we treat concerning those medicines, which are convenient at the time when the fever is absent ; as also in the cold fit, or first stage of intermitting fevers.

From what has been said in the commentaries to §. 558, it is evident that a fever is an instrument of nature, whereby she endeavours to separate the impure from the pure parts of the humours ; and that this is frequently excited, in order to expel from the body some foreign matter repugnant to health, or else to change the blood into a new disposition ; and that therefore physicians of the greatest repute in practice are not always so much solicitous about removing the fever, as in keeping it under a due moderation only, that it might neither be too languid, nor offer injury by too great violence. But all these particulars are likewise true in an intermitting fever ; and it there appeared that the most difficult and obstinate diseases have sometimes been cured by intermitting fevers. When the most fluid parts of the blood have been dissipated after summer heats, the bile being more acrid and redundant, and likewise more tenacious, is often collected and lodged about the præcordia ; and then autumnal intermitting fevers usually spread epidemically, by which, if rightly treated, the bilious corrupt humours are dissolved and expelled, obstructions of the viscera are most happily opened, which derive their origin from a more thick and less pervious blood, till at length the

most



most perfect state of health is restored. But, on the contrary, it appears by many fatal instances, that such fevers being unskilfully suppressed by the Peruvian bark, before the material cause, which ought to be subdued and expelled, is removed, the patients have languished, have acquired an ill state of the solids and fluids, with the worst obstructions of the abdominal viscera, and even frequently have perished thereby. Sydenham<sup>f</sup> observed an autumnal tertian invade epidemically at the same time with a continual fever, attended almost with the like symptoms, and curable nearly in the same method; from whence he concludes, *Febrim illam continuam intermittentium quasi compendium quoddam esse, & è contra singulos earum paroxysmos compendium hujusce videri; atque adeo discrimen in hoc maxime versari, quod continuæ conceptionem semel effervescentiam eodemque semper tenore percerent; intermittentes autem partitis vicibus ac diversis temporibus eadem defungerentur*; 'That this continual fever was a sort of compendium of intermittents; and, on the other hand, that each fit of the intermittents seems to be a compendium of the other continual fever; and therefore their chief difference seems to lie, in that the continual fever runs thro' its course from the beginning to the end in one continual strain; but that the intermittents perform the same thing at separate and different times.' But this great physician had learnt by a careful attention to diseases, that the continual fever itself most happily subdued its own material cause; and therefore he reasonably expected the same effect from intermitting fevers. But all this is confirmed from what has been said before concerning the effects of a fever (§ 587.) for it there appeared that the fever itself

<sup>f</sup> Sect. I. cap. 3. pag. 56,

self produced an irritation of the stagnant humour, an intimate mixture of them all, and a concoction or subduing of the resisting matter, &c. Moreover it was proved at §. 753, that an intermittent fever acts by resolving and attenuating, while it runs through its stages, and that therefore it often frees the body from inveterate disorders, as was said at §. 754.

The best method of all therefore of curing the fevers, seems to be that which conspires together with the fever itself, to resolve what is concrete, to open the obstructed vessels, and by that means to restore the equable circulation of the humours through all the vessels. It will be therefore useful for the patient to take such things betwixt the fevers when the fever is absent, as are by physicians termed aperients from their effects; of which a variety may be chose, according to the diversity of the obstacle, to be removed by the fever assisted with these medicines. But these remedies are useful with so much greater efficacy in the body of the patient, as in the febrile paroxysm next following they will be more rapidly moved thro' all the vessels. Hence also physicians commonly use motion or exercise of body, with heat and frictions, at the time when the fever is off, that by increasing the motion of the humours through the vessels, the efficacy of the remedies might be likewise increased for the humours being dissolved by saline, alkaline and mineral medicines (see §. 135.) together with diluents (§. 134.) while all the emissaries are relaxed with fomentations and soft oily medicines, the body is thus disposed to easily separate and expel, by the febrile paroxysm about to follow, the offending matter lodged in the body, for the removal of which the fever itself was intended by nature. But different remedies are convenient

according



According to the different season of the year, age, and habit of the patient, epidemical constitution, &c. For in the spring time, and in juvenile patients, the hotter medicines must not be used. Autumnal fevers, on the other hand, more especially those which are prolonged until the winter, require warmer medicines, especially if the patient's strength is weakened by the disease, or if the body languishes by an advancing old age; for then the *radix contrayerva*, *serpentaria Virginiana*, saffron, and the like most penetrating aromatics, are of the greatest use. In cold phlegmatic habits, alkaline salts are the best aperients, which yet are often injurious to warm and bilious people; and therefore those of the saline neutral kind are preferred, as nitre, sal polychrest. tartarus vitriolatus, &c. But if there are signs of a putrefaction to be feared (§. 85, 86.) medicines which are acid and oily, as spiritus nitri dulcis, juice of elder berries, currants, and the like, may be useful of themselves. Thus in such epidemical intermitting fevers, as usually arise in autumn after the summer heats, with a yellowish colour of the skin and eyes, and a yellowish red colour of the urine, with a weight and sense of anguish about the præcordia, indicating an obstruction of the liver, with a bilious cacochymy, emollient and diluent medicines are of the greatest use, such as decoctions of dandelion, fucory, roots of viper's grass, common grass, &c. mixed with sal polychrest. and honey, and drank plentifully when the fever is off; and afterwards being put into a violent motion, through all the vessels by the febrile paroxysm, they have most happily opened the obstructions of the viscera, dissolved and rendered moveable the bilious matter, which at length has been expelled from the body either spontaneously, or by the use of a gentle vomit or purge.

But

But although aperient and attenuating medicines seem to be generally of the greatest use for the cure of intermitting fevers, yet there are cases which sometimes occur, where astringents and incrassating medicines, with such things as strengthen the solid parts of the body, are rather needful. For in tender girls, and in people of a very weak habit, all the humours are sometimes so much dissolved by intermitting fevers, that they waste with profuse sweats, not only in the end of the febrile fits, but also at any other time, and especially in their sleep: and I have found the English more especially inclined to these sweats, when they have been afflicted with intermitting fevers. But it is evident enough, that attenuating and diluent medicines must be here prejudicial, since there is already too great a weakness of the solid parts, and too great a dissolution of the humours. In this case the cortex Peruvianus, tamarisci, capparidis, with spices infused in rough red wine, afford a very good medicine: for intermitting fevers are seldom cured in such habits but by the Peruvian bark; or only respites are introduced, that the body may be in the mean time strengthened.

Various remedies are enumerated in the materia medica, corresponding to the number of the present aphorism, which act by opening the vessels and attenuating the humours; and from whence such may be chose, as are most agreeable to the nature of the disease, constitution of the patient, &c.

But all these, though they are chiefly of use at the time when the patient is free from the fit, yet they may be serviceable in the beginning of the fit itself, the symptoms of which we enumerated at §. 749. For it there appeared, that this is the most dangerous stage of intermitting fevers, because the  
free



The motion of the blood is impeded through the  
 extremities of the arteries, and becoming imper-  
 ous it is accumulated about the right side of the  
 heart and lungs. Such things therefore as at-  
 tenuate and dilute the blood, relax and open the  
 vessels, will be then of the greatest use, as we said  
 before at §. 625. But the more heating medi-  
 cines, and such as have a violent stimulus, are not  
 to be used in this stage of the fever, for the rea-  
 sons before given at §. 624; the use of these being  
 proper betwixt the fits, when the fever is absent. At  
 the same time also it appears, that by the use of  
 perient, attenuating, diluent, and other medicines,  
 while the fever is off, the humours and vessels are  
 disposed, that there is less danger from a stag-  
 nation during the time of the cold fit; and after-  
 wards those parts of the humours which began  
 to concrete together by stagnation, will be more  
 easily dissolved again in the time of the hot fit of  
 the fever.

This therefore seems to be the general method  
 of curing intermitting fevers; namely, to procure  
 greater dissolution of the humours betwixt the  
 fits when the fever is off; by mild stimulating  
 aromatics, exercise and frictions, to increase the  
 motion of the humours through the vessels; and  
 at the same time, that all the emunctories of the  
 body may be set open, that such parts of the  
 morbid humours may escape, as have been sub-  
 dued by the fever itself, and which are usually ex-  
 pelled various ways from the body.

## S E C T. DCCLIX.

**M**oreover, a purge or vomit is often useful to evacuate the redundant morbid humours in the first passages, given long enough before the fit to have finished the operation before it invades. That such an evacuation is necessary to be made, is known from the diet, and from the preceding symptoms and disorders, a nausea, vomiting, belching, distension or swelling, vapours from the stomach, a foulness of the tongue, fauce and palate; aversion to food, bitterness of the mouth, vertigo with darkness; and after the operation of the purge or vomit is over, giving an opiate to allay the disturbance before the fever invades.

It frequently happens in intermitting fevers, that there is a collection of foul humours in the first passages, whether they pre-existed before the fever, or arose from the food taken in during the time of the fever, and not well digested or changed by the humours, more especially the bile collected in these passages during the fever. That such a collection of foul humours ought to be removed, no one can doubt, since the lodgment of these here usually destroys the whole appetite, and being rendered much worse by stagnating, may especially produce a putrid diarrhœa or dysentery. But since vomits and purges are rather prejudicial for intermitting fevers, unless such a collection of foul humours is present, as we shall declare hereafter at §. 761, therefore the physician

must



must attend to those signs which denote, that such humours are lodged in the first passages.

There may be reason to suspect such clogging humours, if the patient has indulged himself in a richer sort of diet, and especially in fat, glutinous, or other food of difficult digestion. But the preceding diseases which usually afflict those who are oppressed with such foul humours, will likewise confirm this in such a patient. Sometimes in epidemical intermitting fevers, they are generally observed to be of such a nature; that corrupt bile fluctuates about the præcordia in all patients indifferently, which kind of fevers have been observed by Sydenham<sup>g</sup>, and then there can be no room to doubt of the usefulness of a vomit or purge. But when such humours are lodged in the first passages, they afford certain signs or symptoms, whereby their presence may be known; namely, a nausea, vomiting, belching, vapours from the stomach, &c. as we said more at large when we treated of putrid humours in the first passages, at §. 85, and at §. 642, where we treated of nausea in fevers. But there is more especially used to attend at that time, anxiety and a troublesome sense of tightness about the præcordia; and even sometimes the hypochondria are swelled and protuberant, which Hippocrates<sup>h</sup> ranks among the signs of a future flux from the bowels in fevers. But by what passages these accumulated humours may be most conveniently discharged, the same symptoms likewise generally demonstrate: for the nausea, vomiting, bitterness of the mouth, giddiness, with a darkness of the sight, &c. rather indicate vomiting: an obtuse pain of the loins, rumbling

<sup>g</sup> Sect. I. cap. 3. pag. 55.

<sup>h</sup> Aphor. 73. Sect. IV. Charter. Tom. IX pag. 183.

rumbling noise, and flatus of the bowels, with a distension of the abdomen, denote that these humours rather incline downward by stool. Hence Hippocrates observes (as we said before upon another occasion in the comment to §. 594. N° 2.) *Quibus febricitantibus autem anxietates sunt, & oris ventriculi morsus, & sputationes, vomitus fit: quibus vero ructus adsunt, flatus, strepitus ventris, & elevationes, his fit alvi exturbatio.* ‘ That in those febrile patients who have anxiety with a pain in the upper orifice of the stomach and spitting, vomiting ensues; but in those who have belchings, flatus, with a noise and swelling of the abdomen, in these happens a flux from the bowels.’ But frequently these humours are expelled both upwards and downwards at the same time, for vomits given generally excite stools, and purges frequently excite vomiting, more especially if such foul humours are collected, as well in the stomach as in the intestines. But if in the beginning of the febrile paroxysms, when a vomiting and nausea generally attend (see §. 749.) part of these humours are expelled, we may be then more certain that such artificial evacuations must be infallibly useful. For as Hippocrates observes, *In iis, quæ medicamento fiunt, purgationibus, talia ex corpore educenda sunt, qualia etiam sponte prodeuntia juvat.* ‘ In those evacuations which are made by medicines, such humours are to be discharged from the body as are found to be useful by spontaneous disorders <sup>i</sup>.’

When therefore it appears from the signs before mentioned, that there is a redundant collection of humours in the first passages, it ought to be removed as

<sup>i</sup> Hippocrat. Aphor. 2. Sect. IV. Charter. Tom. IX. pag. 132.



as soon as possible ; for as long as that continues, the loss of appetite and sickness of stomach will prevent the patients from taking due nourishment at the time when the fever is off, so as to recruit their strength. But at what time a purging or vomiting medicine may be best taken, is not yet agreed on amongst physicians. Sydenham<sup>k</sup> seems to have given them at the time when the fever was absent, in such a manner that the operation of the medicine might be over before the invasion of the next fit. But it is indeed true, that he sometimes gave a purge to loosen the bowels when the fever was present ; but then he did not give it so much to expel the redundant humours from the first passages, as to disturb the ordinary course of the febrile paroxysms, concerning which we shall treat under the aphorism next following.

But since during the time of the cold fit there is frequently a nausea and vomiting attends, (see . 749.) many have been of opinion, that then the morbid matter is very moveable, and might be therefore more easily expelled, if by an emetic given at this time, the spontaneous inclination to vomiting is promoted. Nor does this opinion seem in the least unreasonable, and the celebrated physician Alexander Thomson<sup>l</sup> assures us, he has followed this method for twenty years with success. But he gave the emetic at the time when the first signs appeared of the approaching fit ; but when the febrile cold was accompanied with a violent trembling without a nausea, he then gave vomit towards the beginning of the febrile heat, as soon as ever the patient began to perceive a sickness at the stomach. But it is evident enough,

X 3

that

<sup>k</sup> Epist. Respons. 1. pag. 391.

<sup>l</sup> Medic. Essays, Tom. IV. pag. 407.

that the medicines thus taken must be immediately discharged again; and therefore a vomit thus given does not excite so much disturbance as if it was longer retained. This method seems to have been used by Asclepiades <sup>m</sup>; for in a tertian fever on the third day after the invasion, namely, on the third day when the second fit invaded, he says, that the bowels ought to be purged; and on the fifth day after the shivering, an evacuation is to be made by a vomit. But this method is also recommended by Celsus <sup>n</sup>, who in describing the cure of the cold fit in fevers, in another place says, *Igitur cum primum aliquis inborruit, & ex horrore incaluit, dare ei oportet potui tepidam aquam subsalsam, & vomere eum cogere: nam fere talis horror ab his oritur, quæ biliosa in stomacho resederunt. Idem faciendum est, si proximo quoque circuitu æque accessit: sæpe enim sic discutitur.* ‘ There-  
 ‘ fore when any one is first taken with a horror  
 ‘ and afterwards has begun to grow hot, to such a  
 ‘ patient warm water with a little salt ought to be  
 ‘ given for a drink to excite a vomit; for almost  
 ‘ the same kind of horror arises in these patients,  
 ‘ as proceeds from the bilious humours forced into  
 ‘ the stomach. The same thing is to be done  
 ‘ also, even if the hot fit is next coming on, for  
 ‘ by this means it is often removed.’ But this  
 method has more especially pleased many, because  
 the febrile matter collected in the time betwixt  
 the two fits, and from whence the renewal of the  
 paroxysms is believed entirely to proceed, may be  
 thus happily expelled, as it is all ready at hand.  
 But from what has been said at §. 757, it seems  
 very probable, that the febrile fits do not always  
 arise

<sup>m</sup> Cels. Lib. III. cap. 14. pag. 143.

<sup>n</sup> Ibid. cap. 12. pag. 141.



arise from such a collection of morbid humours, and therefore vomits in this respect are not always necessary in the fit itself; although it may perhaps be serviceable sometimes by disturbing the febrile disposition, which renews the paroxysm by the disturbance or tumults excited by the nerves, concerning which we shall immediately treat hereafter.

But to promote the vomiting by the drinking of warm water, when it spontaneously arises in the time of the fit, can never be prejudicial, as thus the patient vomits with less trouble than if the stomach was empty; and at the same time all that is lodged in the stomach may be commodiously washed out.

But since we are here treating of that case in which there is a redundance of morbid humours collected in the first passages, manifesting itself by its proper signs; it therefore seems safer to expel it by a vomit or purge before the fit comes on, rather than afflict the patient with the troublesome operation of the medicine, and of the disease at the same time.

But a vomit or purge is usually given at such a time, that as near as possible it may exert its effects just before the fit is about to happen; yet so that the operation of the medicine may be over before the fit begins. For patients afflicted with intermitting fevers, generally find themselves best when they have gone longest after a preceding fit, and therefore they will at that time be best able to bear the action of medicines. Even if any febrile matter gradually accumulated renews the fits, there would then be a considerable quantity of that matter collected in the time just before the next fit is about to approach, which we might then reasonably hope to expel by the medicine.

But since Sydenham learnt by careful attention to diseases, (for which reason his authority is esteemed of the greatest moment with all physicians) that the febrile motion is irritated both by purges and vomits, which even excite the fever when dormant, as we said before at §. 757, therefore it will be convenient after the operation of the medicine to allay the tumult before the fever invades by giving an opiate. But so strictly did Sydenham adhere to this method, that in diseases where he suspected the use of opiates, he nevertheless gave them if a purging medicine had been used before \*. Now as the purges or vomits exert their effects sooner or later, so they are taken at a larger or shorter interval of time, before the invasion of the paroxysm. Thus for example, ipecacuanha usually excites a vomit in half an hour after it is taken, and finishes its operation in about two hours; but antimonial vomits often lie in the body for two hours before they operate. Purges usually operate in six or eight hours; but if they are taken in the form of pills, they often lie a considerable time before they begin to dissolve and exert their action.

But since ipecacuanha is sufficient to expel the collected humours in this case by vomit, we may therefore very well neglect the more violent antimonial emetics, which excite much greater disturbance in the body. But there are several forms both of purges and vomits, to be seen adapted to this purpose, in the materia medica of our author, corresponding to the number of the present aphorism.

But

\* In *Schedula monitor. de novæ febris ingressu*, pag. 654.  
655.



But so happy effects have these medicines sometimes, that they not only expel the morbid humours, but also prevent the future paroxysms; and this more especially in vernal intermittents, in which Sydenham<sup>e</sup> assures us he made use of this method, *Ante paroxysmum negotio suo defungi possit. Præsertim sic quantitatem mediocrem syrupi de meconio vel cujusvis narcotici, post finitam emetici operationem, exhiberet immediatè ante paroxysmi insultum.* By giving the vomit so that it might finish its operation before the beginning of the fit, and especially if he gave a moderate quantity of syrupus de meconio, or some other narcotic after the operation of the emetic, immediately before the invasion of the fit.

But when the signs teach that the morbid humours are not perfectly discharged by one vomit or purge, they may, and ought to be repeated with caution, as it is sometimes required in autumnal intermitting fevers, when there is a great quantity of more tenacious corrupt bile. In that case it is likewise frequently useful to premise the use of diluents and attenuants before the purgatives, that by this means the humours being dissolved and rendered moveable, may be more easily expelled.

## S E C T. DCCLX.

**B**UT these vomiting and purging medicines are likewise both of them useful, inasmuch as they stimulate and shake the whole body.

But

But purges and vomits are not only useful, inasmuch as they evacuate; but also inasmuch as they wonderfully stimulate and disturb the whole body, so as to change the condition which at present prevails throughout. For (from what has been said at §. 757.) it seems probable that the latent disposition which renews the fits of intermittent fevers at stated times, is lodged in the nerves, spirits, or encephalon; but the action of most purges and vomits seems to consist in wonderfully irritating the nerves dispersed through the abdominal viscera by their surprising stimulus, which is often very latent, and which seems principally to reside in the volatile and spirituous part of such remedies. Thus scammony, if it is negligently kept, loses its cadaverous smell, and becomes inactive, without any loss in its weight: and the same is also observed of rhubarb, and many more purges. We likewise see that the regulus of antimony infused in wine fills it with an emetic virtue, though the smell, colour, and taste of the wine continue unaltered, and the regulus appears to have lost nothing of its weight. The activity therefore of these medicines seems to consist in a most subtile principle escaping almost all the senses, and acting upon the most subtile fluid in the human body. This opinion is confirmed, inasmuch as women who are extremely moveable in their nervous system, and hypochondriacal men who are subject to disturbances of the spirits from the slightest causes, are used to be very badly affected by purges and vomits, even at the time when such medicines taken do not yet excite any such evacuations; to which evacuations otherwise, especially if they were copious, these tumults excited might be ascribed. Moreover opium, which so efficaciously and certainly quiets disturbances and

inordi-



inordinate motions of the spirits, equally allays the action of purges and vomits, as <sup>f</sup> Sydenham has observed; even if purges are given after opium has been first taken, and before the efficacy of it is vanished, they are observed to produce very little or no effect.

Purging and vomiting medicines therefore seem by their stimulus in some manner to change, lessen or dissipate that disposition or impression upon the spirits, from whence the fits of intermitting fevers are renewed; and therefore they are deservedly used for this purpose, even though it does not so plainly appear what this morbid impression is, or what that change is, which happens in the body from the use of these remedies. We shall hereafter see, when we come to treat of madness and epilepsies, that the strongest vomits are sometimes given by physicians, not so much to make an evacuation of offending humours, as by exciting such disturbances to make an alteration in the latent cause of those diseases, or what stirs up those diseases into action when they are dormant. Moreover by vomits, especially the abdominal viscera pressed by the violent concussion of the diaphragm and abdominal muscles, frequently suffer a dissolution and expulsion of many obstructing humours, which could not be otherwise obtained by different medicines. Hence Galen <sup>g</sup> treating of a tertian fever says, *Vomitum autem post cibum adeo utilis est sane illis, quibus hæc febris inveteraverit, ut multos norim statim post vomitiones a febre esse prorsus liberatos*; ‘ But vomiting is so useful, at least after meals, to those who have been a long time afflicted

<sup>f</sup> Sect. IV. cap. 3. pag. 227, & alibi sæpius.

<sup>g</sup> Method. Med. ad Glaucon. Lib. I. cap. 11. Charter. Tom. X. pag. 356.

‘ flicted with this fever, that I have known many  
 ‘ immediately freed from the fever after vomiting.’  
 But it is evident vomiting was not so useful here, by  
 expelling the morbid collection of humours from  
 the first passages, since Galen says, that the vomit-  
 ing ought to be after meals; for as long as there is  
 such a collection of humours, there is no appetite  
 to food, as we said before under the preceding apho-  
 rism.

But when purges and vomits are given with  
 this design, they may be also administered in the  
 fit itself, or at such an interval before it, as to act  
 while the fit is on: and this seems to have been  
 the case, when these medicines thus given have  
 been found useful. Thus Sydenham<sup>h</sup> in autum-  
 nal tertians gave whey of milk in which the leaves  
 of sage had been boiled, in order to excite sweats,  
 the patient being put to bed, and well covered,  
 about four hours before the fit; and when the  
 sweats appeared, he gave two scruples of pil. coch.  
 major. dissolved in an ounce of a spirituous mix-  
 ture, containing two drams of theriaca Androma-  
 chi, which theriaca contains opium, by that means  
 endeavouring to lessen the evacuation to be made  
 by the purges. Hence it is sufficiently evident,  
 that his design was not to purge by this medicine,  
 but only, as indeed he expressly says, *Binis illis*  
*contrariis sudandi & dejiciendi motibus eodem tem-*  
*pore excitatis, paroxysmi processum confunderet atque*  
*interturbaret*; ‘ to disturb and confound the course  
 ‘ of the fit, by exciting at the same time those  
 ‘ two contrary motions of sweating and purging.’  
 But he affirms that he removed many autumnal in-  
 termitting fevers by this method, and that he knew  
 nothing better in that epidemical constitution of  
 the disease.

## S E C T.



## S E C T. DCCLXI.

Otherwise these evacuating medicines (§. 759.) are prejudicial, as they weaken, exhaust the most fluid juices, and disturb the concoctions and digestions which are here more especially necessary; and thus they either prolong the disease, or destroy the patient. The cold fit and fever in this case are often removed by a sudorific medicine, when the patient's body has been first filled some hours before the known time of the invasion of the paroxysm, with some diluent and moderately narcotic drink, and then to excite a sweat about an hour before the fever, and to continue it until two hours are elapsed after the time of the beginning of the paroxysm.

Since therefore purges and vomits are found of so much use in the cure of intermitting fevers, partly by expelling the morbid humours collected in the first passages, and partly by their stimulus; therefore many physicians have been of opinion, that the use of them ought to be closely continued, if the fever does not cease; but the too frequent use of these medicines has been always attended with the worst success. For, as<sup>i</sup> Galen well observes, *Purgantium omnium medicamentorum natura corporum, quæ purgantur, naturis contraria est, atque, ut quisquam dixerit, lethalis & deleteria*; the nature of all purging medicines is contrary to the nature of the parts of the body which they  
‘ purge,

<sup>i</sup> In Commentariis in Hippocrat. de victu acutor. Charter. Tom. XI. pag. 46.

‘ purge, and even one may pronounce them poi-  
 ‘ sonous or fatal.’ In like manner also Celsus  
 strictly cautions, *Purgationes quoque, ut interdum*  
*necessariæ sunt, sic, ubi frequentes sunt, periculum*  
*afferunt. Assuescit enim non ali corpus, & ob hoc*  
*infirmum erit;* ‘ that as purges are sometimes ne-  
 ‘ cessary, so, where they are frequently used, they  
 ‘ are dangerous: for the body is thereby brought  
 ‘ into a habit of not being nourished, and will  
 ‘ be therefore rendered infirm by this means.  
 When therefore those signs attend, which denote  
 redundancy of morbid humours in the first passage  
 (see §. 759.) after a purge or vomit given two  
 or three times, they will be either perfectly remov-  
 ed, or at least greatly lessened; and also if it has  
 been tried once or twice in vain, what can be done  
 by the stimulus of such medicines (see §. 760.) it  
 will then be proper to abstain from the use of them.  
 For the fever often continues, though there are no  
 longer any foul humours in the first passages, and  
 sometimes the febrile impression cannot be removed  
 by these stimuli, see §. 757. It will be therefore  
 in vain to attempt to weaken the patient in such a  
 case by these remedies, since they dissipate the most  
 fluid parts of the humours, and disturb the digesti-  
 on of the nourishment taken in; both which are  
 so absolutely necessary to enable the patient to sup-  
 port fevers of long continuance. But any one may  
 be sometimes deceived in examining what is ex-  
 pelled from the body by the use of purges or vo-  
 mits, as the humours frequently appear ill smell-  
 ing, and perfectly corrupted. For it is evident  
 from what was said in the comment to §. 201,  
 and 334, that such humours do not always pre-  
 exist in the body, as they appear upon being dis-  
 charged; but, as the ancient physicians have taught,

the



the healthy humours are first corrupted by the purging medicine, and afterwards expelled in that corrupt state. This Helmont<sup>1</sup> learnt to his own damage, when he was cured by the physicians of an itch, which he had contracted by imprudently putting on the glove of a girl who had the same distemper. For after bleeding premised, they endeavoured to prepare him for an expulsion of the morbid humours, which they supposed to be lodged in the body, by supplying him with a drink for three days, and afterwards they purged him with pills of fumitory. But he confesses, that he rejoiced when he saw a great quantity of foetid humours thus discharged: but the same purges were repeated three times, and with the same success. But by such evacuations Helmont found himself so reduced in strength, though he was before cheerful and healthy, and so much altered or emaciated in body, that his knees trembled, his voice became hoarse, and all his strength failed him. Yet his itch continued the same as at first. But he tells us, *Quod pharmaca purgantia non purgant, aut mundarent, sed putrefacerent. Quodque vividam corporis substantiam liquassent, & in putrilaginem resolviscent*; 'that he then understood that purging medicines do not depurate or cleanse, but putrefy the humours; and that they dissolved the healthy substance of the body with the humours into a putrid mass.' This unhappy method of curing the cutaneous disease, which he had contracted only by putting on a glove, occasioned him to lay aside his medicine and studies till he believed he knew better; and from that time Helmont having conceived an ill opinion of the physicians, strenuously endeavoured to expose their errors,

<sup>1</sup> De Febribus, cap. 5. N<sup>o</sup> 10. pag. 756.

rors, and condemn the use of purges; concluding that it was no peccant humour which purges discharged, *sed cruor, per virus pharmaci mactatus, ejusque foetens cadaver, quod per anum ejicitur*; ‘but  
 ‘ blood dissolved by the power of the medicine,  
 ‘ so as to acquire a cadaverous foetid smell, as it  
 ‘ appeared to be discharged by stool <sup>m</sup>.’

From this history at least it is evident, what may be expected from the imprudent use of purges in the cure of intermitting fevers.

But the justly condemned method of giving any evacuating medicines too often in intermitting fevers, is confirmed by the observations of Sydenham <sup>n</sup>. For even vernal tertians, which are in their own nature so salutary and easy to cure, he had known by this means prolonged even to the time that autumnal fevers are used to invade, till at length they had perfectly reduced the patient to the greatest weakness, by the prolongation and reduplication of the fits; and that even those patients had fallen into a madness, who had departed from the method whereby the patient’s strength might be restored. In people advanced in years, he sometimes observed it produce a fatal inflammation of the tonsils <sup>o</sup>, sometimes a dropsey <sup>p</sup>, and sometimes a diabetes <sup>q</sup>. But he always observed the fever become worse, and more obstinate, after a too plentiful use of evacuating medicines.

The cold fit and fever in this case are often removed by a sudorific medicine, &c.] This is the third method of curing intermitting fevers; and it may be safely repeated, if the cure does not succeed  
 at

<sup>m</sup> In Capitulo Respondet Author. N<sup>o</sup> 4. pag. 420.

<sup>n</sup> Sect. I. cap. 5. pag. 100.

<sup>o</sup> Ibid. pag. 122.

<sup>p</sup> Ibid. pag. 120.

<sup>q</sup> Idem Epist. Respons. I. pag. 387.



at the first time. But (as we said before at §. 756.) every medicine which is able, in the first stage of the fever, namely, in the cold fit, to remove the first cause, the viscidty of the arterial fluid, and perhaps likewise of the nervous juice (see §. 755.) seems likewise able to subdue the whole febrile paroxysm, since the febrile heat with its concomitant symptoms never follow in intermitting fevers, unless the cold fit has preceded. All the intentions of cure therefore depend upon giving such medicines when the fever is absent, as dissolve and attenuate the humours, open the vessels, and introduce such a moderate warmth throughout the patient's whole body, at the time when the future paroxysm is expected, as will prevent the febrile cold by the heat uniformly increased throughout the whole body, with a mild sweat, excited by gentle aromatic and warming medicines, moderately increasing the motion of the humours through the vessels. A decoction therefore of the five opening roots, an infusion of the woods of sanders, saffrafras, balm, citron-peels, the four larger and lesser warm seeds, &c. drank to the quantity of an ounce or two every hour betwixt the fits when the fever is off, will fill the body with a thin aromatic liquor. And sometimes to these are added a mixture of the salt of wormwood, or of the carduus benedictus, &c. elixir proprietatis, distilled aromatic waters, and the like; of which half an ounce may be taken every, or every other hour, drinking afterwards an aromatic infusion or decoction. To such mixtures it is usual to add a small quantity of opium, not so much as to occasion sleepiness, but rather in so small a dose, and at repeated times, as to allay the disturbances of the spirits of the nerves, and prevent that change of them, whatever it may be, that is used to at-

tend in the time of the cold fit. But these aromatic drinks are to be given stronger, or more dilute according to the age and habit of the patient, with the season of the year, country, &c. and in the materia medica corresponding to the number of this aphorism, may be seen specimens of these kinds of medicines. But two or three hours before the known time of the approaching fit, the patient should be seated before a large fire well covered with cloaths: it will be also of use, if the patient's feet be at the same time immersed in hot water. Others rather chuse to have the patient well covered up with cloaths in the bed, then the medicines before recommended may be given every quarter of an hour; whence the patient begins to grow hot, and frequently runs down with sweat. But this method is to be continued, until two hours are elapsed after the time of the beginning of the fit; and thus the hot fit of the fever is frequently prevented, or removed; otherwise the same method is to be repeated upon the following days, till the fever is cured. This method seldom fails in tertian fevers; and even sometimes quartans have been thus cured. Nor is it any objection to this, what we observed at §. 624, in treating of the cold fit of a fever, namely, that medicines powerfully stimulating are injurious, as they often excite an incurable inflammation: for the spice here are drunk diluted with a large quantity of water, and the humours are thus attenuated and thinned by these remedies in the interval when the fever is off; and the vessels are so opened, that there is no reason to fear any danger from thence. Moreover, all these are not taken in the cold fit and yet that fit is usually prevented by these remedies. But when the cold fit begins to invade, and the fever being more stubborn does not yield immediately



mediately to this method, we abstain from the use of such as are stimulating and heating, and exhibit only a more dilute aromatic infusion.

But it is evident from what was said at §. 756, that Celsus made use of the same method, by ordering the patient into the warm bath about the time of the cold fit; nor would he have that method be laid aside, even though the cold fit should return, but on the contrary he would have it firmly persisted in: and if after some fits the bath appeared of no use, he gave garlic or hot water with pepper, that by the taking of these a heat might be excited to drive or keep off the cold fit. He also advises <sup>r</sup> the patient to be well covered and assisted by frictions, warm fomentations and the like, applied to the whole body, before the cold fit can approach.

But so useful did this method seem to Sydenham <sup>s</sup>, that he assures us, he had not experienced any better for the cure of autumnal tertians, at least those of the epidemical constitution which he describes. For although as we said under the preceding aphorism, he gave pil. cochiae to the patient in a sweat, in order to disturb the ordinary course of the fit, yet his principal hopes seem to be placed in exciting and continuing sweats, until some hours are relapsed beyond the usual time of the fit. Even he orders the pil. cochiae to be omitted in double tertians, and would have the cure attempted by sudorifics only <sup>t</sup>. And in another place <sup>u</sup>, to poor people whose circumstances would not admit of a long course of medicines,

Y 2

he

<sup>r</sup> Celsus, Lib. III. cap. 13. pag. 142,

<sup>s</sup> Sect. I. cap. 5. pag. 111.

<sup>t</sup> Ibidem.

<sup>u</sup> Epistola Respons. 1. pag. 391.

he only gave the radix serpentaria virginiana, which abounds with a penetrating spiciness, in wine about two hours before the fit, and ordered them to sweat three or four hours well covered up with cloaths; and the same he would likewise have repeated twice more at the approach of the fit of a vernal tertian.

But when tertian and quotidian fevers are yet recent, and upon the brink of turning continual, having as yet not put on any certain period, he then cautions<sup>w</sup>, that to attempt the cure by sudorifics is dangerous; since by a more profuse sweat these fevers may be very easily changed into continual ones, not without danger to the patient; as we said before upon another occasion, in the comment to §. 752.

But when the patient's blood is naturally of a very loose or broken texture, or if by long continued and violent intermittent fevers he is much inclined to weakening sweats (see §. 753.) then certainly this method must not be follow'd; although, except in these two cases, it is otherwise found very successful.

## S E C T.     DCCLXII.

**H**ENCE also blood-letting in these fevers is in itself generally prejudicial, otherwise it may be of service by accident or in some cases, as may be likewise a thin and strict diet.

Since blood-letting is so efficacious a remedy in quieting the too great violence of a fever, as we said before, many physicians have been likewise

<sup>w</sup> Ibid. pag. 374.



of opinion, that it may be of great use in the cure of intermitting fevers; and even some have believed, that these fevers might be removed only by repeated blood-letting. But since it was demonstrated under the preceding aphorism, that all evacuations if violent and repeated, are prejudicial because they weaken, so the same is true likewise of blood-letting. But purges in autumnal intermittents are not so prejudicial, unless they are too often repeated, according to the observation of Sydenham<sup>\*</sup>; but venesection he assures us he had learnt from frequent observation to be always mischievous, *Nisi eodem ictu chirurgi gladiolus, quo venam pertundit, ipsam etiam febrim conso- lidat.* ‘ Unless the surgeon kills the fever at the same time, and by the same instrument with which he wounds the vein.’ For in strong and otherwise healthy people, he had observed these fevers continue longer and more inflexible after blood letting; and in old people he observes, that death itself has frequently followed from this evacuation. But he observes blood-letting as being the most mischievous of all, to those afflicted with quartan fevers. Yet it may indeed be of service by accident, as when, for example, in a juvenile plethoric person, and especially in the spring time, there is danger lest the blood, being rarefied during the heat, should burst the vessels already too full, or when a violent pain of the head attends from the same cause: but then blood-letting does not properly conduce to the cure of the intermitting fever itself, but it only prevents those bad consequences which are feared from the too great quantity and rarefaction of blood. Thus also if a vomit is necessary, bleeding is sometimes pre-  
Y 3
mised,

<sup>\*</sup> Sect. I. cap. 5. pag. 110.

misfed, lest the vessels over distended with blood in vomiting, should be burst by the violent strainings. Hence even Sydenham himself, who in other cases so much condemns blood-letting, yet orders it in vernal tertians on the day when the fever is off, when the patient is in the flower of his age, and of a sanguine habit; and when that was performed, he gave a vomit some hours after. It is therefore evident what good is to be expected from blood-letting in the cure of intermittent fevers.

But a thin and strict diet, which prescribes too much abstinence from foods, or the use of such only as are the lightest and abound with the least nourishment, must be equally prejudicial in these fevers. For as they are frequently of long continuance, more especially quartans, *Id agendum est, quod diu sustinendum est, corpus facile sustineat*. ' Endeavours must be used to enable the body to sustain with ease, that which it must support for a long time,' as Celsus expresses it. For it is sufficient in this case to avoid foods which have been hardened by salting, or drying in the air by smoak, or other hard aliments of difficult digestion; and at the same time to take care to avoid eating about the time when the fit is expected; for as we said before at §. 758. from Hippocrates, *Post accessionem cibi exhibendi, conjectura facto, ne quando a recenti alimento, sed jam concoctis cibis, febris ingruat*. ' Food is to be given after the accession, as near as can be computed, lest the fever should come on while the aliment is crude or before it is concocted.' This method of curing intermittent fevers by a thin and strict diet, seems to have been put in practice



by the ancient physicians. For thus Celsus <sup>z</sup> advises in a quartan, which he knew to be of slow termination, that if it does not go off on the first days, he would have the patient drink warm water only upon the first day after the fever; and for the two next days not to drink, even water, if it can be avoided; after the second fit he allows only a small quantity of food with a little wine, and then upon the intermediate or free days between the second and third fit, he gives warm water only, and orders abstinence from every thing else; in which method he would have the patient continue until the fourteenth day; and thus says he, *Ac sic proximum est, ut quies tot dierum, & ab-  
 stinentia cum cæteris, quæ præcipiuntur, febrim tol-  
 ant.* ‘It is probable that by rest for so many days with abstinence and other remedies prescribed, the fever may be removed.’ But if the fever continues still, he would have another method of cure undertaken; and orders the patient to use as much and as strong food with wine, as he can bear.

I have several times seen the cure of a quartan attempted by severe abstinence, but always with ill success; and the wise Hippocrates <sup>a</sup> observes (as we said before upon another occasion in the comment to §. 602. N<sup>o</sup> 1.) that a thin and exquisite diet is always dangerous in diseases of long continuance: and that errors thus committed, are much worse than those which arise from a too plentiful diet; even in healthy people such a thin diet is not without danger. But in the fits themselves he orders the food to be diminished <sup>b</sup>, &c. Hence

Y 4

it

<sup>z</sup> Ibidem.

<sup>a</sup> Aphor. 4. & 5. Sect. I. Charter. Tom. IX. pag. 9, 11.

<sup>b</sup> Aphor. 11. Sect. I. ibid. pag. 15.

it would seem, that we may conclude for certain, that a too thin and strict diet is not safe, even in the beginning of a quartan. Much less can we approve of the method used by Heraclides of Tarentum<sup>c</sup>, who tells us, *Qui in quartana ducendam alvum, deinde abstinendum in septimum diem dixit.* 'That in a quartan a purge is to be given, and afterwards abstinence to be enjoined to the seventh day:' for as Celsus well observes, *Quod ut sustinere aliquis possit, tamen etiam febre liberatus vix refectioi valebit; adeo, si febris sæpius accesserit, confidet.* 'It is hardly in the power of any one to support purging without nourishment, even without a fever; and therefore if the fever invades, the patient must of necessity sink under it by this means.' But the unhappy success of this method, is proved by many instances in medical history. Thus a young man of a bilious habit by long fasting, is observed by Hollerius<sup>d</sup>, to have perished with faintings in a violent fit of an intermittent tertian; and the same thing is likewise testified to have happened to others. Tulpius<sup>e</sup> in his observations affirms, that such an abstinence had proved fatal to many in quartan fevers.

## S E C T.    DCCLXIII.

**W**HEN the fever is in its second stage or hot fit (§. 750.) watery medicines actually warm, and mixed with subacids, aperients, and nitrous medicines, or decoctions

<sup>c</sup> Cels. Lib. III. cap. 15. pag. 145.

<sup>d</sup> In Coac. Hippoc. pag. 179.

<sup>e</sup> Observ. Medic. Lib. III. cap. 53. pag. 271, 272.



ons of succory, with the like mild vegetable aperients, are chiefly indicated; and the patient should likewise then be kept moderately warm and at rest.

We have hitherto treated of those medicines which are chiefly useful either in the cold fit, or when the fever is off; it now remains for us to see what is necessary to be done in the other stages of an intermitting fever. But the present aphorism treats of what is convenient during the hot fit of the fever.

It appears evident from what was said at §. 750, that in this stage the motion of the humours is increased through the vessels; as we are taught from the pulse being larger, stronger, and at the same time sufficiently quick, and attended with an increased heat, from the greater attrition of the fluid parts against each other, against the vessels, and of the vessels against them (see §. 675.) Here therefore all those consequences are to be feared, which arise from an increased quickness of the circulation (see §. 100.) and such as owe their origin to an increased heat (see §. 689.) But in the mean time as intermitting fevers entirely cease for a while, these bad consequences are not to be feared in any great degree from the heat and increased velocity of the circulation, which cease after a few hours; and even frequently the circulation is more languid, and the body appears colder when the fit is off, than what is naturally to be observed in a healthy body. For this reason, though so great a degree of heat is observed in this stage of an intermitting fever, as would be very dangerous in continual fevers, and require to be treated with bleeding, clysters, and other weakening medicines capable of restraining the too  
great

great violence of a fever (see §. 610.) yet there is seldom occasion for these in the present case, except in patients very plethoric; and therefore we generally abstain from the use of them, because it was proved under the preceding aphorisms, that the like remedies often prove mischievous in the cure of intermitting fevers.

It is therefore sufficient for the patient to take such warm watery liquors as may prevent or remove the increased cohesion of the humours, from the greater heat and quickness of the circulation, by diluting and attenuating them: to these are added subacids, which resist putrefaction to be feared from the same causes; and which at the same time happily relieve the troublesome thirst. Decoctions of succory, and the like bitter, aromatic, and cooling, lactescent plants are also recommended; concerning the efficacy of which in resolving the febrile viscid, we treated of before, at §. 614. Hence decoctions of barley, oats, vipers grass, roots of common grass, and the like obtunding and mild aperient substances, with the addition of nitre, citron juice, jelly of elder berries, currants, and the like, are extremely useful; of which kind many more medicines are enumerated in our author's materia medica, at the number corresponding to §. 640, and adapted to thirst in fevers.

But that rest is here convenient, appears from what was said before at §. 105; and it is also indicated by the pain of the head and limbs (§. 750.) which usually attends the febrile heat: but as such patients have at that time a troublesome heat, it would be imprudent to increase the heat by a weight of bed-cloaths or the exhibition of heating medicines; but those things ought rather to be gradually removed with which the patient was covered during the time of the cold fit; taking care



to keep the patient always in a moderate warmth, that the cold air may not come suddenly to the heated body, and to prevent plentiful drinking of cold liquors, which is a thing often earnestly desired, when the patient is uneasy under the febrile heat.

## S E C T. DCCLXIV.

**W**HEN the paroxysm terminates by a crisis (§. 751.) it will be proper to evacuate the matter by urine and sweat, by temperate decoctions, vinous ptisans, and flesh broths; and in such a manner as not to express, or force these by the efficacy of heat, medicines, or weight of bed-cloaths, but to promote them moderately and for a long time, by increasing the quantity of their vehicle.

The last stage of the intermitting fever, is when the fit terminates by a profuse sweat, and commonly with a remission of all the symptoms, as was said at §. 751; and then also the urine has commonly a thick lateritious sediment. But as the patients perceive considerable relief upon the appearance of this sweat, which then soon puts an end to the febrile paroxysm, therefore physicians will have this evacuation not only indulged, but even promoted, as being of opinion, that the febrile matter may be most commodiously evacuated this way from the body; and even some have thought that by increasing these sweats, the matter might be expelled, which remaining in the body would renew the subsequent fits. It seems indeed very probable, that by these sweats are evacuated from the body such parts of the humours,  
which

which by, and during the fever, degenerate from their healthy state, and therefore this sweat is always useful; but yet it is not always convenient to increase its quantity by art. For although some may believe, that by these sweats is expelled part of the cause from whence the fits are renewed, yet such a one cannot be certain, that the remaining part of the same cause is at that time disposed to be likewise evacuated; and therefore increasing these sweats may be prejudicial, by wasting the most fluid parts of the humours. Sydenham<sup>f</sup> has indeed observed, that vernal intermitting fevers, especially quotidians, have been cured by diaphoretics, which promote a sweat in the end of the fit, the patient in the mean time being well covered with bed-cloaths; and he even orders the patients to continue in these sweats, as long as their strength will permit. But he observes in the same place, that this method does not succeed in autumnal intermittents; and a little before he declares, that these vernal fevers not only go off spontaneously, but are likewise happily removed by various methods tried. Hence it is evident, that from this observation we cannot conclude an artificial raising of a sweat, to be useful in the end of the febrile paroxysm; more especially if we consider what is said to this purpose in other parts of the same author. For in treating of autumnal epidemic fevers<sup>g</sup>, he says, that the sweat which appears in this disease, when the restlessness goes off and the other symptoms immediately disappear, ought indeed to be a little indulged; and yet that it is found upon experience, that if this sweat in the end of the fit is increased beyond its proper

<sup>f</sup> Sect. I. cap. 5. pag. 103.

<sup>g</sup> Idem in Epistola 1. Responsor. pag. 375.



proper bounds, it will be in danger of changing  
 an intermitting into a continual fever. The like  
 has also in another place <sup>h</sup>.

From all this therefore it seems we may con-  
 clude, that the fit of an intermitting fever constantly  
 terminates with a sweat, which ought rather to be  
 indulged, and even promoted by such things as  
 restore to the blood those juices which are diffi-  
 ated by sweats: as when a ptisan with wine or  
 flesh broth, mixed with juice of citrons or oranges,  
 supply the matter exhausted by sweat, and at the  
 same time recruit the patient's strength, weakened  
 by the fever; and afterwards by the sleep which  
 generally follows such light and thin nourishment,  
 is most equally distributed throughout every part.  
 But it is a very doubtful, and frequently a pernicious  
 practice, to force these sweats by the power  
 of heat, the weight of bed-cloaths, or by heating  
 sudorific medicines. But the appearance is best  
 when such a sweat is discharged but moderately,  
 and for a long time together, or rather if the  
 insensible perspiration only is increased instead of  
 profuse sweat.

## S E C T. DCCLXV.

**M**oreover, the urgent symptoms attend-  
 ing, are to be relieved, agreeable to  
 the directions given before for acute fevers  
 (§. 617, to 726.)

We have already treated of the symptoms which  
 usually attend fevers in the aphorisms here cited in  
 the text, from whence the cure of them may be  
 therefore

<sup>h</sup> De Podagra, pag. 565.

therefore derived. But then, as we said before §. 620, in the cure of febrile symptoms, a regard must always be had to the cause and stage of the disease itself, upon which those symptoms are attendants: which caution is therefore to be observed likewise in the cure of the symptoms of intermitting fevers. Thus it appears from what has been already said, for instance, that a too frequent use of blood-letting, vomits, and purges is prejudicial for intermitting fevers; and that therefore if for symptoms seem to require these evacuations, yet they ought not to be used so liberally as they commonly are in other cases. Thus, as we observed before, at §. 751, and 757, in a certain epidemic constitution, the patients were taken perfectly with the same symptoms in the fit of the intermitting fever, as if they were taken with an apoplexy. But although the removal of this symptom seemed to require great evacuations, yet Sydenham<sup>i</sup> abstained from the use of them, as he knew them to be perfectly against the original cause of the symptom, namely, the intermitting fever. Thus also when intermitting fevers of long continuance were followed with a dropsy, he did not attempt the cure by purges, as long as the fever attended, but waited till that was perfectly gone off; or if the cure of this symptom could not well be deferred so long, he treated it with bitters, aromatics, and lixivial salts infused together in wine<sup>k</sup>. Thus also in the madness which sometimes follows intermitting fevers of long continuance, especially quartans, he abstained from all evacuating medicines which are useful only in the other kinds of madness; having recourse in this case merely to a restorative

<sup>i</sup> Epist. Respons. 1. pag. 387.

<sup>k</sup> Idem Sect. I. cap. 5. pag. 120.



S E C T. DCCLXVI.

**A**FTER the fever is removed, the patient is to be recruited by a restorative diet, and corroborating medicines; and when his strength is increased, he is to be purged several times by stool.

It was said in the comment to §. 757, that after intermitting fevers are removed, there still remains for a long time that latent disposition, which by the accession of another cause, as cold, indigestible food, passions of the mind, &c. is put into action again, so as to cause a return of the fits: and therefore when the fever is removed, there still remains something more to be done to prevent its return; and likewise to restore and correct such alterations as have been made by the preceding fever, deviating from the laws of health. But in vernal intermittents, which are usually of short duration, and terminate almost spontaneously, while the warmth of the air likewise is daily increasing, there is no great attention required to prevent their returns: but in autumnal intermittents, more especially those which invade epidemically, greater caution is necessary. For these last are much more obstinate, weaken the patient more, and are in greater danger of returning from the increasing coldness and inclemencies of the weather.

The diet should be therefore such as contains nothing but what is easy of digestion, and contains  
a great

<sup>1</sup> Idem ibidem, pag. 123, 124.

a great quantity of nutritious matter. Flesh broths new laid eggs, the flesh of young animals roasted, tender river fish baked, with the addition of the juice of citrons or oranges, bread well fermented or twice baked, as the rusk with milk, are the chief. The drink should be small in quantity, but rich or strong. At the same time care must be taken not to let the patient eat too much at once of such aliments, though they may be easy of digestion, especially as such patients are often very voracious after the cure of these fevers. For by the sweats following after each paroxysm, and the other evacuations made either spontaneously, or by art, much of the healthy humours are destroyed, and the solid parts at the same time are greatly weakened; as we demonstrated before at §. 753; and therefore the two causes will be weak or deficient, upon which depends the assimilation of the ingested aliments into the nature of healthy animal fluids, namely, a due quantity of sound juices, and a due force of the solids upon the fluids, as we demonstrated at §. 25. N<sup>o</sup> 1. It is therefore evident, that unless these cautions are observed in the diet, from the food being either of difficult digestion, or from the best food being taken in too great quantities at once, crudities may be formed, and a spontaneous degeneration may be expected of what is taken in, either into an acid, putrid, glutinous, or other morbid matter; from whence not only a return of the fever may be feared, but also the origin of chronical diseases may proceed from the same effects; as will be demonstrated hereafter at §. 1050.

The sleep is to be longer than usual, and exercise of body, if the strength will permit, will be likewise of great use; but if great weakness forbids, its deficiency may be supplied by riding in a chariot,



chriot, or other carriage: the cold is to be carefully avoided, the efficacy of which in exciting fevers again, when they have been suppressed, we demonstrated in the comment to §. 757.

But such medicines are principally recommended, as corroborate the weakened solid parts, excite the stomach by the agreeable spiciness, when it is in a languishing condition, and defend the whole body against the cold of the air. But since there is frequently a corrupt bile attends in autumnal intermitting fevers, and which sometimes is discharged spontaneously, but oftener by art either upward or downward; therefore there is commonly a deficiency in the due quantity of good bile after those fevers are cured, though at the same time this juice is demonstrated by physiology to be of the greatest use and importance towards chylification and nutrition. For this reason therefore it will be necessary to add corroborating and spicy medicines to such things as can supply the deficiency of the bile, namely, bitters, which have been recommended for this purpose from all ages, as wormwood, the lesser centaury, roots of elicampane, gentian, myrrh, &c. From all which, with cinnamon, Winter's bark, citron, or orange peels, &c. medicinal wines are prepared; of which two or three ounces may be taken three times every day upon an empty stomach, so as to very well answer this indication. That kind of theriaca called diateffaron from the number of its ingredients, mixed and reduced into the form of an electuary, with an equal quantity of preserved ginger, will answer the same purpose, if it is taken thrice a day to the quantity of a dram or two; for then this fragrant spice will continue the whole day in the first passages, so as to excite the languishing parts by an agreeable stimulus, and in-

crease their warmth, while the bitterness of the gentian root, myrrh, &c. happily supply the deficiency of the bile.

But after the patient's strength is recovered by such a restorative diet and corroborating medicines, it will then be proper to cleanse the bowels by purges several times repeated. Sydenham<sup>m</sup> (whose observations in the cure of diseases deserve to be trusted beyond all others, as well from his great penetration and sagacity in discovering the nature of diseases, as for the veracity and openness which he demonstrates throughout his writings, wherein he does not so much as conceal, or ever excuse his own errors or mistakes) believed this evacuation to be so necessary, that he could safely predict some dangerous disease would follow, if purging was neglected after autumnal fevers, more especially if the patient recovered from these fevers, was far advanced in years. But he cautioned against the use of purges before the fever is perfectly removed. For he abstained from these medicines as long as he could perceive even the least alteration in the patient, upon those days when the fit used to return; and he would even chuse rather to let the patient alone for the space of a month, than oblige him to take purges too soon; but after the operation of the purge, he gave a paretic medicine to quiet the tumults, which are often excited even by the mildest purgatives, lest perhaps the morbid impression, a long time concealed in the nerves, should thus break out again into action, and renew the fits. But if purges were given too soon, he observed that the fever always returned and became much more obstinate than at first. For the same reason likewise, he rather

<sup>m</sup> Sect. I. cap. 5. pag. 117, 118.



rather chose to leave long intervals betwixt each purge, ordering them to be repeated only once in week, for two or three months.

Yet the repetition of purges so often, is not necessary in every patient, nor does Sydenham seem to have made this his constant practice; for soon after he describes a purging apozem to be taken upon the three following days, when there is no danger of the fever's return; and he adds, that this must be repeated as often as it shall be found necessary. When autumnal intermitting fevers were spread epidemically in these parts some years ago, I gave a scruple or half a dram of pil Ruffi, to patients who had been free from the fever for two or three weeks, and this I repeated three times, intermitting some days betwixt, and I seldom found occasion for purging oftener. For all the functions continued entire, there was no longer any foulness of the tongue, or oppression about the præcordia, nor any sense of a weight or heaviness, from which signs attending we especially conclude purging medicines to be necessary. Yet I observed at the same time, that if these purges were neglected, the urine became redder than usual, the white of the eye turned yellow, the tongue appeared foul, and the appetite was abolished, &c. all which symptoms were removed, or at least diminished, immediately upon giving a purge, which usually brought away a great quantity of bilious humours.

## S E C T. DCCLXVII.

**B**UT if the intermitting fever be autumnal and severe, the body weakened by disease, or the distemper of any long standing, while at the same time there are no signs of inflam-

340    Intermittent FEVERS. Sect. 76  
mation internally, nor of any collection of  
matter in any part, nor any considerable ob-  
structions in this or that viscus, the fever may  
be then removed by the Peruvian bark, either  
in the form of a powder, infusion, extract,  
decoction or syrup, with the addition of such  
other ingredients as may be suitable to the  
particular circumstances, to be administered  
under a due regimen in a proper dose, and in  
a just order betwixt the fits, when the fever  
is absent.

We come now to treat of the cure of intermit-  
ting fevers by the use of the Peruvian bark.

The use of this bark was first known in Europe  
about the middle of the last century, from which  
time it has largely prevailed; and it then appeared  
from numerous and daily observations, that in  
intermittent fevers might be removed by the Pe-  
ruvian bark. But in the mean time it appeared  
that this medicine did not always act with the same  
success, being sometimes followed with the worst  
disorders, which were ascribed to this medicine as  
the cause; and on this account the use of the bark  
was condemned as pernicious by many physicians,  
though at the same time the ill accidents following  
after the cure of fevers by this medicine, might be  
justly ascribed to very different causes.

For we have seen at §. 753, that sometimes  
very considerable and morbid alterations have been  
introduced by intermittent fevers, both in the  
solid and fluid parts of the body; and that these  
alterations sometimes terminate in the most stub-  
born chronic diseases, as a dropsy, scurvy, jaun-  
dice, scirrhus tumours of the abdomen, &c. and  
which disorders arising from intermittent fevers con-  
long



long standing, or following some time after them, cannot be justly ascribed to the Peruvian bark made use of for the cure of those stubborn intermitting fevers; since the most numerous observations of physicians assure us, that all these disorders have been produced by intermitting fevers, even before the use of the Peruvian bark was known in Europe. Moreover, by the use of the Peruvian bark the intermitting fever is indeed removed, but then all those indispositions of the solid and fluid parts of the body which it introduced, are not removed at the same time, but they continue even after the fever, to be cured by other medicines.

But it likewise appears from what was said at §. 754, that the most inveterate and latent disorders, hardly curable by any medicines, as a palpitation of the heart, epilepsy, gout, &c. have been either removed by intermittents, or at least their violence has been suspended. It there also appeared, that by these fevers the body is disposed to longevity; and that afterwards people who have had these fevers not attended with malignant symptoms, nor too violent or of long standing, have for the future enjoyed a very good state of health. When therefore these fevers are cured by the Peruvian bark, from which disease so many and great benefits might be expected to the patient, his interest is indeed badly consulted; but then the mischiefs which follow, ought rather to be ascribed to a want of skill or attention in the person who undertakes the cure, than to this incomparable medicine.

The use of the Peruvian bark has indeed been suspected by many people, chiefly because it often removes intermitting fevers without any sensible evacuation; for which reason they have supposed,

that the morbid matter still continues always in the body after these fevers have been cured, a part of which matter ought to have been expelled in each paroxysm, until the whole is removed. For although it cannot be denied, that sometimes there is a morbid matter in the body, which being subdued and put in motion by the fever, is happily disposed to be expelled by various ways; yet it appears from what was said in the comment to §. 757, that the fits of intermitting fevers cannot be excited by foul humours lodged in the body, nor by any fomes accumulated during the absence of the fever; but that they proceed rather from some latent character or impression made upon the nervous spirits, the nerves themselves, or the common origin of both, which yet may indeed be irritated by morbid humours collected, so as to produce much longer and more violent fits; and that this may be excited into action by the like causes when dormant, and yet that it does not always require other causes to make it act. but is capable of renewing the fits by its own force. It is also remarked in the same place, that it seems very probable the Peruvian bark acts only upon this impression or disposition of the nerves, when it removes intermitting fevers without any evacuations or other sensible change in the body.

But, that the Peruvian bark is in its own nature an innocent medicine, we have no room to doubt; for it is frequently given to cure other diseases by its corroborating virtue, even in the weakest people. Thus Sydenham<sup>n</sup> gave a scruple of the Peruvian bark night and morning for several weeks, to hypochondriacal men and hysterical women, and likewise to such as had acquired a dejected  
œconomy.



economy of body by lingering diseases; and he assures us, that he made a perfect cure of that tedious disorder by this remedy only; and adds, that he freely made use of the bark when there was occasion, both for his wife and children. When I was formerly intent upon collecting the history of simple medicines, I tried the virtues of many even upon my own body, and took the quantity of an ounce of the Peruvian bark beat to a fine powder, in the space of two hours in a morning fasting, nor was I able to perceive any detriment from thence. I have known some make an advantage of the disrepute unjustly thrown upon this salutary medicine, which they have openly condemned as extremely mischievous, when at the same time they have privately made use of it, concealed by the addition of other ingredients, and have boasted themselves able to cure intermitting fevers by secret medicines, for which they have extorted an unreasonable price from the unhappy patients, being unworthy of the name of physicians. But as all the best medicines, so the Peruvian bark may do harm when unskilfully applied; and therefore it is first necessary to enquire strictly whether any thing lies concealed in the body, requiring a continuance of the fever, in order to remove it safely and speedily; as also whether any considerable advantage may be expected from leaving the fever to itself, either for removing inveterate diseases, or in so changing the body as to dispose it to a firm state of health, or to longevity (see §. 754.) For upon these conditions the bark ought to be abstained from. Thus for example, if a strong young man is taken with a simple quartan, not attended with any bad symptoms, the patient being at his own dispose, and capable of using a due regimen, it will be always

best to leave that fever to itself, since constant observation has taught physicians, that the body is by such a fever changed for the better. But on the contrary, if the patient is old, weak, or subject to waste with profuse sweats from the slightest causes, the use of the Peruvian bark will be necessary. But the principal reasons for which the use of this medicine is required, and the various cautions to be observed in its use, are reckoned up in this aphorism; and therefore we shall consider them more particularly.

But if the intermitting fever be autumnal and severe.] For vernal fevers are easy to remove, and usually go off spontaneously in a little time, as was said at §. 747; and therefore the bark is seldom made use of in these, unless by attempting to remove them with unseasonable evacuations, these vernal fevers should run out to a greater length, or waste the patient in very profuse sweats; for then I have often seen even vernal fevers inflexible to all other methods, and only to be cured by the Peruvian bark. But if an autumnal intermitting fever is not so violent as to occasion sudden weakness, nor other disorders seem to be feared, enumerated at §. 753, it is better to abstain from the use of the bark, and to let it gradually go off either spontaneously or by the method before described §. 758, to 767. For the Peruvian bark, as Sydenham<sup>o</sup> justly observes, oftener commands a truce than entirely subdues the fever, which lying dormant for two or three weeks usually returns again. But when the fever has been cured by another method, there is less danger of its return.

The



The body weakened by disease.] For if the patient either from a natural disposition, an advanced age, or intensity of the disease, becomes so much weakened, that there is danger lest he should be carried off by more numerous or more violent fits, then the Peruvian bark ought to be exhibited; even though there are other signs which seem to forbid its use. For thus we command a suspension of the disease to the great relief of the patient, who in the mean time may be recruited with suitable diet, so as to be afterwards able to sustain the violent and troublesome returns of the fever without danger.

For in such cases we are not always to endeavour to prevent the return of the fever by a repeated use of the bark (for that practice is seldom without danger) but we make use of those remedies before recommended at §. 758, at the time when the fever is off, that thereby the obstructions of the viscera may be resolved, and the other disorders remedied; the removal of which is attempted by nature through the fever itself, as we said before in the general history of fevers. For there is then great reason to hope, that the patient's strength being recruited after two or three weeks, the fever about to return will finish the rest of its course in a short time, and by that means restore the patient to the most perfect health.

The distemper of any long standing.] This rule is of the greatest consequence, insomuch, that being neglected, sometimes death, but frequently the most direful and perfectly irregular symptoms have followed, much worse even than the fever itself. For they who are so much alarmed with the odious name of fever, that they always and immediately endeavour to remove it even in vernal tertians, which

which have appeared only with one or two fits, such are directly for giving the bark to make a cure while the fever is as it were in the bud; these being ignorant that the fever is often itself a remedy, as Celsus<sup>p</sup> well observes, and as we demonstrated more at large in the comment to §. 558. A young man had the bark given him after the second fit of a vernal tertian, lest, as the physician said, the fever should take too deep root; and when the fever returned again after some days, it was again directly suppressed by the bark: but I afterwards saw this unfortunate patient invaded every day about the hour when the fits used to come on, with a yawning, stretching, wonderful rumbling noise in the bowels, swelling of the abdomen, and loss of speech, without any alteration in the pulse, but with an intolerable anguish; all which troublesome disorders continued for two months, though various methods of cure were attempted. So many and so great disorders were brought upon the patient, to avoid a few fits of a vernal tertian. Medical observations<sup>q</sup> demonstrate, that a jaundice, dropsey, asthma, and wonderful disturbances of the whole nervous system, have sometimes followed from such an imprudent use of the Peruvian bark. I shall only add one extraordinary case in confirmation of what has been said. A young man afflicted with a quotidian intermitting fever, took five drams of the Peruvian bark in each of the intervals between the three first fits: but at the time of the fourth fit he had only a slight horror or shivering, and on the next day after some minutes shivering, he was taken with the most violent pains about his ancles, as  
if

<sup>p</sup> Lib. II. cap. 8. pag. 70.

<sup>q</sup> Medical Essays, Tom. IV. cap. 24. pag. 410.



f all the parts were twisting and cutting off. These tortures continued for about five minutes, and then the pain suddenly ceasing in the ancles, affected the knees in the same manner, and for the same space of time, and then the pains removed to the joints of the thighs; after these followed a hardness, pain, and swelling of the abdomen, which ceasing, the most severe disorder took place in the thorax, with imminent danger of suffocation; afterwards he fell down and lay as one apoplectic, and at last became altogether delirious. The delirium ceasing after five or six minutes, the patient seemed to be pretty well; and in this state he continued for about as long a time as all the forementioned symptoms had been invading; and then again all the forementioned symptoms returned in the same order, and continued the same space of time<sup>r</sup>. More cases of the like nature are enumerated in the same place; from whence it appears, that it is not without the greatest reason that Sydenham<sup>s</sup> gave the following caution: *Currandum est ante omnia, ne præmaturè nimis hic cortex ingeratur, ante scilicet quam morbus suo se Marte aliquantisper protriverit (nisi collabescentes & jam fractæ ægri vires eundem temporius sumendum esse dictaverint) neque enim illud solum est metuendum, ne a præproprio ejus usu inefficax iste reddatur, & spem ægri fallat; sed etiam ne de ægri vita agatur, si sanguini, omni fermentationis nisu se despumanti, eam derepente injiciamus remoram*. That care is to be taken first not to enter upon the use of the bark too soon, namely, before the disease has in some measure subdued itself (unless the weak and broken strength of the patient indicate the bark

<sup>r</sup> Ibidem.

<sup>s</sup> Sect. I. cap. 5. pag. 112.

‘ bark should be taken at that time); for there is not  
 ‘ only reason to fear that this medicine will de-  
 ‘ ceive the patient’s expectation, and be rendered  
 ‘ ineffectual by a too early use; but there may  
 ‘ be likewise reason to fear it will prove fatal to  
 ‘ the patient’s life, if we by this means suddenly  
 ‘ put a stop to the febrile motion, by which the  
 ‘ blood is endeavouring to depurate itself with all  
 ‘ the force of nature.’

But altho’ this rule seems to be of universal use  
 in practice, yet when every fit of the fever is at-  
 tended with some dangerous symptom, which can-  
 not be remov’d but together with the fever itself,  
 we are then sometimes obliged to use the bark  
 sooner than usual. I had the care some years ago,  
 when autumnal intermittent fevers were epidemi-  
 cal, of a woman having a very weak or irritable  
 nervous system, afflicted with a tertian, she hav-  
 ing been delivered about five weeks before of a  
 healthy male child. In the beginning of the second  
 fit she was convulsed, and continued speechless for  
 some hours. But as she complained of a sense  
 of heaviness about the præcordia, and as I have  
 known vomits or purges given before the fit to re-  
 lieve many other patients in the same complaint, I  
 therefore ordered a gentle purgative to be taken  
 eight hours before the fit next following, and ap-  
 pointed a cordial and opiate medicine, to allay the  
 disturbance excited in the body by the operation  
 of the purge, and all before the invasion of the fit.  
 But two hours after taking the purge she was con-  
 vulsed, and continued speechless longer than in the  
 preceding fit: I then gave a decoction of the bark  
 when the fit was over with so much success, that  
 the next fit which was the last, appeared very  
 slight and without any bad symptom, the patient  
 finding herself wonderfully strengthened, and much  
 less



less liable to be disordered from passions of the mind even though violent. But even Sydenham<sup>\*</sup> himself in the like case, when the patients lie in the fits like those who are taken with an apoplexy, orders the bark to be immediately given as soon as the fit is over, or even before, if it can be conveniently taken.

And no signs of inflammation internally.] It appears from what has been said in the comment to §. 753, concerning the effects of intermitting fevers, that by these fevers when violent or of long continuance, the blood is deprived of its best parts, and what remains becomes thick and acrid, so as to be greatly inclined to produce inflammations and obstructions. But it is confirmed by the observations of the most celebrated physicians, that inflammations and their consequences, though not so often, do yet sometimes follow from intermitting fevers, and generally with fatal events. There is sometimes a slight kind of inflammation in the liver, attends autumnal intermitting fevers when they are epidemical, in which the use of the bark is always of the worst consequence, inasmuch as it removes the fever, and leaves behind the matter, which ought to have been concocted and dissolved by the fever itself. When therefore a continual fixed pain, or the sense of a burning heat internally, with the other signs of inflammation attend, the use of the bark must be abstained from.

Nor any collection of matter in any part.] In consumptive people we frequently observe a fever every day, which sometimes perfectly intermits, but sometimes has only remissions; which fever seems to arise from the matter daily formed, and after-

<sup>\*</sup> Epist. Respons. 1. pag. 387.

afterwards evacuated by spitting    The concoction of this matter is performed by such a fever, which, if it was to be suppressed by the Peruvian bark, such patients always find themselves greatly disordered, and oppressed with the greatest anguish; and therefore if there is the least suspicion of matter collected in any part, the use of the bark must be entirely rejected.

Nor any considerable obstruction in this or that viscus.] After the most intense heats of the summer preceding, autumnal intermittent fevers have been observed to spread epidemically, not only in these low countries, but almost throughout Europe, more especially about the year 1719. of the present century, when such fevers were above all observed the most numerous in this city of Leyden. But then the most fluid parts of the blood seemed to have been dissipated by the preceding heats of the summer, and what remaining being thick and tenacious, could not without much difficulty pass through the narrow extremities of the vessels in the liver, through which all the vernal blood returning from the abdominal viscera must be obliged to pass, by the converging branches of the vena portarum, without any additional force from the impulse of the heart. Therefore an obstruction here formed, not only disturbed the due separation of the bile, but likewise injured the functions of the other chylicative viscera. I then saw both in myself and in many others afflicted with these fevers, that the eyes turned of a yellow colour, and the urine appeared as in a jaundice. There was an anxiety and sense of heaviness perceived about the præcordia, with a sickness at the stomach, and an aversion to food, and in some there was an obtuse pain in the right hypochondrium. But as physicians were overcharged with  
great



great numbers of patients at this time, and more especially in the most populous cities, they generally gave the bark with very bad success; especially if they were not content to have brought about a truce, that the patient might recover strength, but upon the return of the fever immediately suppressed again by the bark, or else prevented its return by a continued use of the same medicine. For many had swellings of the abdomen, and a countenance like tallow or wax, being extremely weak all the winter following; many perished when the foul humours lodged in the obstructed viscera, beginning to putrefy and be put in motion in the spring time, were followed with the most putrid diarrhoea or dysentery; and some died suddenly without the least apprehensions, when a great quantity of blood, seemingly from the wasted liver, was expelled upward or downward. But when the foul bilious humours, which usually infest the first passages in intermitting fevers, were first expelled by a gentle vomit, and then decoctions of grass, succory, dandelion, the five opening roots, and the like, with honey, juice of elder-berries, sal polychrest, &c. were drank plentifully, the fever itself moving these liquid medicines through all the vessels, most happily resolved the obstructions of the viscera, and perfectly cured the patients, so that very few perished out of a great number, when treated by this method. The salutary effects of this method I have also since experienced in other years, when the like fevers have spread epidemically; nor did I ever give the bark, but when the great weakness of the patient required a respite of the disease; and even then I persisted in the use of such aperient and resolving medicines, till the fever returning sooner or later, compleated the cure. But I religiously

giously observed, not to remove the returning fever by the use of the bark, after such respites had been procured; since this is always dangerous, if there is but the least suspicion of any of the viscera obstructed. Hence Sydenham<sup>u</sup> who was bold enough in the use of the Peruvian bark, yet cautions us, *Animadvertendum autem, quod si aeger, non obstante abundanti cautela superius tradita, nihilominus recidivam patiatur (quæ in quartana ipsa rarius accidit, quam in tertianis vel quotidianis) tamen prudentis medici erit, non nimium pertinaciter insistere methodo corticis per dicta intervalla exhibendi, sed pro suo judicio aliis modis curationem aggredi.* ‘ That it ought to be observed, that if the  
 ‘ patient, notwithstanding the caution before delivered, has a return of the fever (which more  
 ‘ seldom happens in quartans than in tertians or  
 ‘ quotidians), yet it is the part of a prudent physician, not to persist obstinately and too much  
 ‘ upon the method of giving the bark betwixt  
 ‘ the fits, but to attempt the cure by other medicines, as his judgment shall direct.’

It is therefore evident from what has been said, that the Peruvian bark is in its own nature an innocent medicine, and may be very safely taken into the body; the only detriment which Sydenham<sup>w</sup> observed to follow the long and repeated use of it, is, that it sometimes inclines the patient to a scorbutic rheumatism, which yet is easily curable by antiscorbutic medicines. But besides this, he knew not of any disorder brought upon the patient by the use of it.

But we may also affirm, that the Peruvian bark removes only the fever; and when the fever is removed,

<sup>u</sup> Epist. Responsor. i. pag. 385.

<sup>w</sup> Ibidem, pag. 376. & Sect. VI. cap. 5. pag. 351.



removed, that those changes continue in the solid and fluid parts which pre-existed either before the fever, and were not removed by the fever, or else have been produced during the time of and by the fever itself. When therefore the fever can serve, as it often may, to more speedily and happily remove or correct those states of the solid and fluid parts deviating from the laws of health, the use of the Peruvian bark is prejudicial; as it also is when there is just reason to hope that the intermitting fever will cure some inveterate disorder, as an epilepsy, &c. or dispose the body to longevity and a more firm state of health.

Thus also we may easily reconcile the different opinions of physicians concerning the Peruvian bark, while some condemn the use of it universally, and others recommend it indiscriminately, both parties appealing to experience. But we are certain there is no one thing absolutely and always an useful medicine, but is so only relatively, as it is seasonably and judiciously applied.

But the corroborating virtue of the Peruvian bark is indeed considerable, and in this respect it is often happily of use in some diseases, as we have already observed; but yet the efficacy of this medicine in subduing intermitting fevers, does not seem to depend upon that quality of it, since the same effect does not so certainly follow from any other corroborating medicine. Hence it is justly termed a specific medicine, by the efficacy of which discovered only by experience, it removes that latent impression of the nerves (see §. 757.) from whence the paroxysm of an intermitting fever is excited, and again renewed at a stated time; or at least if it does not wholly remove it, it renders it unactive for a time, though

in other respects no considerable alteration is observed by the use of it throughout the body.

Nor is it any objection to what has been said, that some people are at times purged by the Peruvian bark, as if they had taken a cathartic medicine \*; for this does not frequently happen, and the generality of patients are cured of the fever by the bark, without any sensible evacuation.

Indeed the celebrated Albertinus \* assures us, that after intermittent fevers cured by the bark, considerable evacuations had followed by stool, sweats, spitting, urine, &c. More especially, that after taking the bark patients have exhaled a very disagreeable and foetid smell, so as to be very troublesome to those who are present, which smell or vapour has continued until some other evacuation has followed by urine or stool, &c. But Albertinus is of opinion, that we may then expect good success from the medicine, and that a return is hardly to be feared, when after the use of the bark such evacuations, which he calls critical, ensue. But when the contrary happens, he thinks a return is to be feared, and therefore advises the use of the bark to be repeated, till such evacuations appearing, the patient recovers a perfect state of health.

But in the mean time it cannot be denied, as we observed at §. 757, that the fever ceases upon giving the Peruvian bark even before these evacuations happen; and therefore that power of the bark which removes the fever, does not proceed from any evacuation of the morbid matter.

Upon reading what has been advanced by Albertinus, I began diligently to observe what happened

\* Sydenham ibidem, pag. 377, 378.

\* Instit. Bonon. pag. 163, & 405.



pened to my patients after I had given them the Peruvian bark: that disagreeable smell exhaling from the patient's body, I have never yet been able to observe; but I have sometimes seen when the bark has been given in the more obstinate autumnal tertians, that after the fever has been silenced for three or four days, the patients have had a flux from the bowels, or a vomiting which has relieved them. But some have had returns of the fever notwithstanding those evacuations, and others have not. And I have remarked moreover, that sometimes the bark has cured the fever so that it never returned after, and yet there has been no sensible evacuation to be observed. But those who have had a vomiting or purging from the bowels, have complained of a sense of heaviness about the præcordia, as soon as the fever has ceased by the use of the bark.

But since, as Albertinus himself testifies, various evacuations by urine, stool, spittings, sweats, &c. have followed in this case, and sometimes very slowly, it therefore seems probable, that when the fever is removed, the body recovering its strength, is enabled by the corroborating virtue of the Peruvian bark, to expel various ways such parts of the humours, as, during the time of the fever, have degenerated from their healthy state; or else the fever being cured, those discharges proceed from the ingested aliments accumulated in the first passages and not concocted, because many patients are very voracious after the use of the bark, and therefore such evacuations do not depend, properly speaking, upon the efficacy of the bark, since they frequently appear only a long time after the use of that medicine. But in the mean time it seems sufficiently probable, that sometimes the occasional causes are removed by those evacuations, which

had it in their power to excite into action, that morbid impression upon the nerves, from whence the return of the fits properly depends (see §. 757.) so that when those causes were removed which excited that impression to act, the fits continued to be renewed by the proper force thereof. But from what has been hitherto said, I think it is evident, that the method is not without danger, which relies upon repeated exhibitions of the bark in expectation of those evacuations appearing, when there are no signs of them; these evacuations often follow a long time after the bark has been given, and therefore do not seem properly ascribed to that medicine; and frequently such causes lie concealed in the body, for which the fever itself is not only the best, but even sometimes the only remedy.

It now remains for us to see what is to be observed in the use of the Peruvian bark, when it shall appear proper to remove the fever by that medicine, or at least to lay it dormant for a time by commanding a truce, that the patient may recover his exhausted strength.

It appears from those authors who have written upon the Peruvian bark, about the time when its use was first made known in Europe, that it was then usually given in substance in the form of a powder, infused or diluted in wine. But afterwards when some ill effects followed from the imprudent administration of this medicine, some physicians imagining a malignity to be lodged in the gross substance of the bark itself, recommended various preparations of it, apprehending without any foundation, I know not what mischief from the ligneous particles; hence they chose to give only a limpid infusion of it, even several times depurated by the filtre. But from what has been said,



said, it is sufficiently evident there is no danger to be apprehended from the bark itself. It may be therefore given in the form of a powder, or made up into an electuary with honey, or with some officinal syrup. The best infusions of the bark are made with wine, and there is likewise a tincture of it commonly kept in the shops made with spirit of wine. The Peruvian bark suffers boiling without any loss of its virtues, and indeed requires it to be continued a long time, in order to render the decoction strong or well saturated, it then appearing turbid, yellowish, frothy, and of an astringent bitter taste. If now such a decoction is evaporated to the thickness of honey with a slow fire, it yields an extract of the bark, which may be given under that form as an electuary, or mixed with some officinal syrup; or else with the addition of powdered liquorish, it may be reduced into a solid mass, so as to form a bolus or pills: and various forms of this kind may be seen in our author's materia medica, corresponding to the number of the present aphorism. But when the patient has too great an aversion to the bitter taste of the bark, or when this is an obstacle to the taking of the medicine, or the several preparations of it; in children the decoction of the bark may be then injected in safety and with equal success in the form of a clyster; or the powder of the bark only diluted with water has altogether the same effect, except that a greater quantity of the bark is necessary, namely, about three times as much as would suffice if taken by the mouth. But in this case it is convenient, first to cleanse the bowels by a clyster or two of honey, with sal gem or the like, that there may be no obstacle from the fæces lodged in the large intestines; and that afterwards the decoction prepared from the bark may be

longer retained in the empty bowels. But at the same time it is to be also observed, as the intention of these clysters is only to be retained in the body, they ought not to exceed five or six ounces in adults, and not above one or two in children, lest the quantity should irritate the intestines to an expulsion. I have often seen this method successful in young children; Helvetius<sup>y</sup> physician at Paris, who boasts himself to be the first inventor of this method, reckons up a great number of patients cured in this manner: but he made use chiefly of the powder of the bark diluted with some ounces of water, without any other additions, as most preferable.

With the addition of such other ingredients as may be suitable to the particular circumstances.] We are certain that the bark alone is sufficient for the cure of these fevers, and that therefore in this respect nothing more seems necessary to be added. Some have indeed added to the bark various other medicines, and oftentimes of an opposite nature, as mineral acids, volatile and fixed alkaline salts, neutral salts, as sal ammoniacum, &c. others again have added purges, opiates<sup>z</sup> or spices, to correct something which they imagined pernicious in the bark. But in the mean time from all these compositions, it appears that the bark is not easily changed from its usual method of curing intermitting fevers, producing the same effects whether given alone, or with those various additions; except that when purges are given at the same time with the bark, they weaken its efficacy by causing it to be sooner expelled by stool: hence Sydenham

<sup>y</sup> Method. omnes febres ita curandi, ut nihil ore assumatur, pag. 4, &c.

<sup>z</sup> Institut. Bononiens. pag. 412.



ham<sup>a</sup> usually gave laudanum at the same time with the bark, in such patients as were naturally inclined to be purged by it, as with a cathartic medicine; by which means he restrained this evacuation, contrary both to the operation of the bark and the disease itself: but if a troublesome vomiting attended, he first allayed it with the juice of citrons mixed with salt of wormwood, and afterwards with liquid laudanum; otherwise he added nothing to the bark but what might serve as a vehicle, or to correct its bitter taste, if the patient was young or delicate. Sometimes indeed additions of certain medicines are made to the bark, in order to change its colour and taste, that the patient may not know what he is taking, lest being prejudiced with an ill opinion of the bark, he should afterwards unjustly ascribe to it all the disorders happening through the remaining part of life, as I have sometimes known to the damage of the reputation of physicians. Thus for example, fixt alkaline salts added to the bark when it is boiling in water, rendered the decoction limpid, and of a deep red colour, whereas without them the decoction would appear turbid and yellowish. For the same reason the peels of oranges, citrons, cinnamon, and the like medicines, are added to alter the taste.

Betwixt the fits when the fever is absent.] When the bark was first brought into Europe, two drams of it beat to fine powder, was infused about three hours before the fit, in a vial of strong white wine, and upon the invasion of the cold fit, or even upon the first appearances of the slightest symptoms, this whole dose was taken, and the patient afterwards put to bed; as appears from

A a 4

the

<sup>a</sup> Sydenh. Epist. Respons. 1. pag. 382.

the *Schedula Romana*, or first paper publishing the use and preparation of the bark, which may be seen in Bartholin<sup>b</sup> and many other authors, who have wrote upon this medicine. But the exhibition of the bark at this time of the disease has been sometimes observed, though rarely, to succeed very badly; and Sydenham<sup>c</sup> has observed, that some patients perished by this means; which brought this capital medicine into great disrepute. But he believed, not without reason, that the bark had then this fatal effect by smothering the fit in the beginning, and by that means hindering the patient from getting over the dangerous stage of the cold fit in which they were suffocated (see §. 749.) It will be therefore safest to begin the use of the bark when the fit is over, and to give this quantity in separate doses, so that the whole may be taken before the next fit is expected.

But when intermittents, by redoubling and prolonging their fits, resemble the nature of continual fevers, as frequently happens in autumn (see §. 748.) so that only a remission is observed without a perfect intermission; in such a case Sydenham<sup>d</sup> began to give the bark as near as he could conjecture in the time of the remission, just after the paroxysm, and from thence he continued it every four hours, without delaying even in the fit itself, because there was no other time allowed for a due quantity of the bark to be taken into the body. And he observes, that this method always happily succeeded, unless intermittent fevers were changed into

<sup>b</sup> Thom. Barthol. histor. anatom. & medic. cent. 5. pag. 108.

<sup>c</sup> Epist. Respons. 1. pag. 379.

<sup>d</sup> Ibid. pag. 383.



into continual ones, by the continual heat of the bed, with the use of heating cordials, namely, so as to run through their course in one strain without remission : for in such a case he assures us, that he had more than once observed the Peruvian bark to be of no service. Even in another place <sup>e</sup>, he plainly cautions against the use of the bark, as not only useless, but prejudicial in continual epidemic fevers and inflammatory diseases ; as a pleurisy, peripneumony, quinsy, &c.

In a just order.] The order and method of taking the bark, chiefly recommended to us by Sydenham <sup>f</sup>, is to exhibit the due quantity in separate doses at equal intervals, so that the whole quantity may be taken before the fit next following is expected. Thus for example, for the cure of a quartan, he gave a dose of the bark every four hours upon the two intermediate days, and therefore divided his ounce into twelve equal parts. But when the fits of intermitting fevers invade at a less distance from each other, it frequently does not seem safe to take so large a quantity in so short a time, as that the whole quantity of the bark necessary for the cure, may be taken before the next fit. Indeed when this quantity is lessened, the following fit of the fever is not wholly removed, but it is generally diminished, and afterwards by continuing the use of the bark betwixt the fits, the cure may be completed. Even in another place, Sydenham <sup>g</sup> advises in the cure of a quartan by the Peruvian bark, *Ut sanguinem dicto medicamine sensim, longioreque a paroxysmis intervallo leviter inficiamus, quam ut uno omnino ictu paroxysmum confodere tentemus ; hoc enim pacto & plus temporis remedio*

<sup>e</sup> Ibid. pag. 401.

<sup>f</sup> Ibid. pag. 381.

<sup>g</sup> Sect. I. cap. 5. pag. 113.

*remedio conceditur, quo suum opus plenius absolvat; & evitatur quidquid id est periculi, quod agro poterit oriri ex subito isto & intempestivo nimis sufflamine, quo paroxysmum jam invalescentem, atque omni se ope exserentem, conamur opprimere.* ‘ That we ought  
 ‘ to fill the blood with the foresaid medicine gradually, and at longer intervals from the fits,  
 ‘ rather than attempt to destroy the paroxysm entirely by one effort; for by this means more  
 ‘ time is given to the medicine to more fully accomplish its effects; and every thing dangerous  
 ‘ may be thus avoided, that can happen to the patient from the too sudden or untimely extinction of the fit about to invade, and endeavouring to exert itself with all its force.’ Therefore he advises the patient to take the quantity of a nutmeg night and morning, upon the days free from the fits, of an electuary made up with an ounce of the Peruvian bark, and two ounces of the syrup of red roses.

In a proper dose.] Sydenham<sup>h</sup> observes, that an ounce of the bark is necessary for the cure of a quartan in adults; but that other intermitting fevers might be so subdued by six drams, namely, three fourth parts of an ounce, as to procure a truce if not a perfect cure. But since it appears from what has been said before, that the bark has nothing dangerous in its own nature, there is therefore no necessity of scrupulously limiting the dose; but to prevent the return of a quartan after it has been cured by an ounce of the bark, he orders that upon the eighth day after taking the first dose, another ounce be given in the same order; and this he would have repeated even a third or fourth time after the same interval, more especially if.

<sup>h</sup> Epist. Respons. 1. pag. 382.



If the patient is weakened by profuse evacuations  
 preceding, or has negligently exposed himself to  
 the cold air. In another place he<sup>i</sup> would have  
 the use of the bark repeated to the third time, al-  
 ways intermitting fourteen days betwixt.

But it is to be well observed, that if the fever  
 ceases after one ounce of the bark taken, and the  
 patient is in a languishing condition, complaining  
 of a sense of heaviness or oppression about the  
 præcordia, the urine appearing as in a jaundice,  
 and the white of the eyes beginning to turn yellow,  
 it is then not at all safe to prevent the return of  
 the fever, by repeating the like quantity of the  
 bark: but after giving the most aperient medicines,  
 the return of the fever ought to be waited for, by  
 which those disorders may be best removed, as  
 have appeared by their signs after the use of the  
 bark. For I have always observed the worst con-  
 sequences to follow, if the use of the bark was con-  
 tinued in these cases, the reason of which is evi-  
 dent, from what has been said before.

One ounce of the bark in substance usually suf-  
 fices, but if it is given in the form of a decoction,  
 twice that quantity is necessary: but when it is in-  
 jected by the way of clyster, thrice that quantity  
 is generally administered, and sometimes even more,  
 especially if the clysters could be not long enough  
 retained by the patient. For Sydenham<sup>\*</sup> has ob-  
 served, that the nearer the fever approaches to the  
 nature of a continual one, either naturally or by  
 the use of a hot regimen, so much the greater  
 quantity of the bark is necessary, insomuch, that  
 he assures us an ounce and a half or two ounces,  
 have

<sup>i</sup> Sect. I. cap. 5. pag. 114.

<sup>\*</sup> Epist. 1. Respons. pag. 384.

have been employed by him for the removal of these fevers.

Under a due regimen.] Sydenham<sup>1</sup> observes, that there is no need of the greatest exactness in this respect; yet he deservedly recommends aliments easy of digestion and affording good juices; because the patient weakened by the preceding fever cannot bear food of difficult digestion, without prejudice and danger of a return, since the dormant impression (§. 757.) is so easily excited into action again. But as the patient has often a large appetite after the fever is removed by the bark, care must be taken to prevent too great a quantity of food from being ingested at one and the same time, since the patient ought to eat sparingly and so much the more frequently. But Sydenham<sup>m</sup> always prohibited the use of summer fruits and cold liquors. But he not only allowed, but even greatly approved of a moderate use of wien. But more especially, care must be taken not to let the patient expose himself indiscreetly to the cold air, for there is danger of a return from nothing so much, as we said at §. 757.

Moreover, Sydenham<sup>n</sup> observes, that intermittent fevers are more difficultly cured by the bark, if during the use of it the patient is continually confined to his bed.

But since as we declared at §. 766, when the intermittent fever is removed, and the patient's strength restored, it will be convenient to repeat purges at proper intervals; yet it must be observed, that for some time after the fever is cured by the bark, no purge must be exhibited, since even the mildest

<sup>1</sup> Ibid. pag. 386.

<sup>m</sup> Ibidem.

<sup>n</sup> Dissert. Epist. pag. 467.



Sect. 768. Intermitting FEVERS. 365  
mildest clyster of sugared milk, will most certainly put the patient in danger of a return °. This is to be more especially remarked, because many perceiving that these fevers are often removed without any sensible evacuations, endeavour afterwards to discharge by purges the morbid humours, which they suppose to lie as yet concealed in the body.

## S E C T. DCCLXVIII.

**B**UT likewise epithems are often serviceable, with inunctions of the spina dorsi, and the drinking of astringent medicines.

Besides the medicines hitherto enumerated, there are also some others recommended for the cure of intermitting fevers, and which have been sometimes observed happily successful.

Epithems.] Which are sometimes applied to various parts of the body, but generally to the pit of the stomach, to the wrists, under the hams or arm-pits, a few hours before the fit is expected. But if we recollect what was said in the comment to §. 757, it will not seem unreasonable to expect some efficacy from such applications; since the latent character or impression from whence the return of the fit proceeds, seems to reside in the most subtile fluid, in the nerves, or in the common origin of them both; and therefore it may be often changed or extinguished, by such medicines as can act with a subtile fragrancy upon the nerves and nervous spirits. Medical history supplies us with many instances of intermitting fevers cured by  
epithems.

• Idem. Epist. 1. Resp. pag. 386.

366 Intermittent FEVERS. Sect. 768.  
epithems. Thus Boyle<sup>p</sup> tells us of himself, that he being afflicted with a violent quotidian, which was in vain attempted to be cured by the usual methods, was yet wonderfully relieved by the application of a cataplasm to the wrists, prepared by two handfuls of bay salt and fresh gathered English hops, with a quarter of a pound of dry currants beat together. For the same purpose he likewise recommends many other things; as foot with turpentine, the herb yellow sewed up in a bag and applied to the stomach, &c.<sup>q</sup>. Even the common groundsel beat to a pultice and applied cold to the wrists on the intermediate day, we are told has cured intermitting fevers<sup>r</sup>. Such like remedies may be safely enough tried, and they may be more especially of use in young children, who often reject every kind of medicine; and this may possibly be from the greater irritability of the nervous system, which in this tender age is more easily affected by such external applications. Yet it must be confessed, that intermitting fevers are not always to be removed by these means; for Mr. Boyle<sup>s</sup> himself owns, that the cataplasm made of hops, salt, and currants, has sometimes failed of success.

Other things of the like kind are also recommended, which stimulate or irritate, inflame, and even frequently corrode the parts to which they are applied; and which prevent the cold fit in the beginning, by exciting a greater heat throughout

<sup>p</sup> De utilitate philosophiæ experimentalis, Exercitat. cap. 10. §. 9. pag. 275.

<sup>q</sup> Ibid. §. 9. pag. 276. & in additionibus ad priorem sectionem partis secundæ, pag. 435.

<sup>r</sup> Medical Essays, Tom II. pag. 47.

<sup>s</sup> De utilit. philos. experiment. Exercit. V. cap. 10. pag. 275.



out the whole body. Thus there was a countryman in a neighbouring village, who cured many of intermitting fevers by meadow crow's-foot beat to a pultice, and applied betwixt the fingers, whence followed most troublesome heat, pain, and erosion of the tender skin in those parts, whence the fever itself was often suddenly cured.

Forms of such epithems may be seen in our author's materia medica, corresponding to the number of the present aphorism.

[Inunctions of the spina dorsi.] It was the method of the ancient physicians, to prevent the cold fit by warm bathing, violent frictions and inunctions, with heating liniments, as is evident from what has been said at §. 756, 758, 761. But since there are innumerable nervous trunks which come out from the spina dorsi; and as the febrile paroxysm seems to be attended with an inactivity of the nervous juice (see §. 755.) as we often observed before; therefore they violently rubbed the whole spina dorsi with woollen cloths, an hour or two before the fit, and then they anointed it before the fire with some penetrating aromatic liniment; the form of which may be likewise seen in the materia medica, corresponding to the number of the present aphorism. Such inunction of the spina dorsi, is often happily successful in the cure of these fevers, which ought generally to be repeated several times before the next fits following: for it seldom cures immediately, though it commonly affords some relief. Hence Celsus<sup>c</sup> recommending the like method, adds, *Neque desistendum est, etiamsi horror redit, sæpe enim pertinacia juvantis malum corporis vincit.* ' That it ought not to be laid aside even though the fits  
' return,

<sup>c</sup> Lib. III. cap. 12. pag. 142.

‘ return; for frequently perseverance in the use  
 ‘ of medicines subdues the disorder of the body.

And the drinking of astringent medicines.] Alum is frequently a medicine much used with the common people, to give the patient alum and nutmeg in a form of which may be seen in the *materia medica*, at the number of the present section. Others recommend plantane, tormentil, and the like astringents. The use of the like medicines seem also to be recommended by Hippocrates<sup>u</sup>. For in tertian fever if the fit came a fourth time he gave a purging medicine; but when the patient did not seem to require a purge, he gave the quantity of a salt-seller full of the powdered roots of cinquefoil in water. Astringents are convenient enough when the patients humours are too thin or dissolved, either naturally or by disease, so as to render them subject to profuse sweats: but when there is too great a thickness of the blood, from a dissipation of its more fluid parts, or when the obstructed viscera rather require resolving and attenuating medicines, it is evident enough, that the use of astringent remedies is to be condemned.

## S E C T. DCCLXIX.

**F**OR the cure of every individual kind of intermitting fevers, let it be observed,  
 1. that those which are truly intermitting go off sooner, as the interval of time or intermission betwixt the fits is less, and the reverse:  
 2. and again, that they come so much nearer to the nature of continual fevers, and are the more likely

<sup>u</sup> De Morbis, Lib. II. cap. 13. Charter. Tom. VII. pag. 565.



Sect. 769. Intermitting FEVERS. 369  
likely to be changed into them: 3. and that  
the cause is probable so much the more move-  
able and more abundant: 4. hence vernal  
intermittents go off spontaneously as the warm  
weather advances: 5. but that autumnal  
intermittents increase as the cold advances:  
6. and from hence it is evident, which  
kind of these fevers requires to be treated with  
medicines, and what kind of medicines they  
ought to be.

We have hitherto considered the general treat-  
ment and cure of intermittent fevers; we come  
now to certain corollaries or deductions taken from  
the preceding, and belonging to the prognosis  
and cure of the several kinds of intermittents.

1. It was the opinion of Sydenham, as we said  
before at §. 757, that the principal difference  
betwixt continual and intermittent fevers, con-  
sisted in the former running through their progress  
in one continued strain from the beginning to the  
end, while intermittents perform the same thing  
at separate times. But he believed, that almost  
the same space of time was necessary to be em-  
ployed, both in continual and intermittent fevers,  
to deplete the mass of blood by the fever. There-  
fore from this doctrine the reason is evident, why  
intermittent fevers which have a less interval of  
time betwixt the fits, terminate sooner than others.  
But how far this is true, has been said before. But  
hence it will follow, that a quotidian fever ter-  
minates sooner than a tertian, and a tertian than a  
quartan, &c. But this rule does not seem to be  
universally true. A quartan is allowed by the  
general consent of all physicians, to be of longer  
duration than a tertian; hence Hippocrates pro-  
V O L. VII. B b nounces

370 Intermitting FEVERS. Sect. 769.  
nounces a quartan fever to be the longest and  
safest, or least hazardous to the patient's life (see  
the comment to §. 598.)

Sometimes indeed a tertian fever runs out to  
several months, but this rarely happens; and ge-  
nerally when a perverse method of cure has been  
attempted by violent and repeated evacuations, as  
we observed before; and quartan fevers treated in  
the same method, have sometimes continued for  
years. But whether or no this rule holds in quin-  
tan, sextan, and other intermitting fevers, that  
they are so much the more obstinate as the interval  
of time betwixt the fits is greater, I cannot easily  
say, since such fevers are very rarely met with in  
these low countries. But at least it seems evident  
from what has been said at §. 746, from the ob-  
servations of physicians, that this does not always  
happen, since a quintan fever, for example, will  
sometimes cease after a few fits, and sometimes it  
will continue for eighteen months.

But the quotidian fever seems to be the most  
frequent exception from this rule, since it is often  
more obstinate than a tertian, as I have frequently  
experienced myself, and as I find it has been re-  
marked by other writers. Thus Hoffman<sup>w</sup> tes-  
tifies, that a quotidian fever is of longer duration,  
being often protracted to several months. Galen<sup>x</sup>  
makes phlegm be the cause of a quotidian, because  
of a cold, sluggish and glutinous humour, which  
is much more difficult to subdue and expel than bile,  
to which he ascribes the cause of a tertian. From  
hence it seems to follow, that he also acknow-  
ledges

<sup>w</sup> Medicin. Rational. & systemat. Tom. IV. part. 1.  
pag. 88.

<sup>x</sup> De Febribus, Lib. I. cap. 4. Charter. Tom. VII.  
pag. 130.



ledges a quotidian fever to be of longer duration; but in another place \* he expressly says, that a quotidian fever is of long duration, and not without danger. Perhaps hitherto relates the following aphorism <sup>y</sup> of Hippocrates. *Quibus accessiones fiunt, quacunque hora febris dimiserit, si postera die eadem hora prehenderit, difficilis sunt judicationis.*

‘ In those intermitting fevers wherein the fits invade upon the same hour of the day that the fever went off the day before, the termination or removal of them is difficult.’ Galen <sup>z</sup> in his commentaries to this place, would have this to be the sense of the present aphorism; that if, for example, any one is taken with a fever about the third hour, which fever goes off at another hour, the fever will return at the third hour of the next day, as also at the same hour of the day after, and so on; and that in this case the patient will be afflicted for a longer time. But such a fever is truly an intermitting quotidian, and therefore we may from hence conclude, Hippocrates testifies such fevers to be of long duration. But Hippocrates seems justly to have remarked, if we are thus to understand the aphorism; *Si postero die eadem hora febris prehenderit*; ‘ if the fits come on upon the same hour the day after;’ namely, to distinguish a quotidian fever from a double tertian, with which Celsus <sup>a</sup> seems to have confounded it. But from observation it is evident, that a double tertian seldom or never invades at the same hour of the day, but that the fits follow each other

B b 2

upon

\* Method. Med. ad Glaucon. Lib. I. cap. 9. Charter, Tom. X. pag. 352.

<sup>y</sup> Sect. IV. aphor. 30. Charter. Tom. IX. pag. 151.

<sup>z</sup> Ibidem.

<sup>a</sup> Lib. III. cap. 3. pag. 116.

upon alternate days, both with respect to the time of their invasion and the concomitant symptoms. Galen indeed observes in the place before cited, that some have given another sense to this aphorism, as they would have it understood, that if, for example, a person is invaded by a fever, and the fever terminates at the twelfth hour; if then on the day following a new fit comes on at the twelfth hour, that then such a disease will have a difficult crisis. But at the same time he observes, those who think thus, can neither support their opinion by reason or experience, whereas the former opinion is proved by experience.

2. For if the fit of a quotidian fever runs out to a great length, there is hardly any time for a true intermission; and even sometimes they really turn into continual fevers, as Celsus <sup>b</sup> well observes in treating of quotidian fevers, where he says, *Rursus aliæ sic desinunt, ut ex toto sequatur integritas: aliæ sic, ut aliquantum quidem minuatur ex febre, nihilominus tamen quædam reliquiæ remaneant, donec altera accessio accedat: ac sæpe aliæ vix quidquam aut nihil remittunt, sed ita, ut cæpere, continuant.* ‘ Again, some of these terminate so as  
 ‘ to leave the patient perfectly well; and others  
 ‘ so, that although the fever is indeed in some  
 ‘ measure lessened, yet nevertheless, some remains  
 ‘ of it continue, until another fit comes on; and  
 ‘ oftentimes others have little or no remission,  
 ‘ but continue as they began.’ Also in tertians, more especially such as are autumnal, by the prolongation and reduplication of the fits, they frequently resemble continual fevers; but in quartans this very rarely happens, because there is so large an interval betwixt the fits. Hence Cel-  
 fus

<sup>b</sup> Ibidem.



# Sect. 769. Intermitting FEVERS. 373

sus<sup>c</sup> says, *Quartana neminem jugulat: sed, si ex ea facta est quotidiana, in malis æger est: quod tamen, nisi culpa vel ægri vel curantis, nunquam fit.* ‘ That  
 ‘ a quartan kills no body; but if it turns to a  
 ‘ quotidian, the patient is in a bad case; which  
 ‘ yet never happens, unless by some fault, either  
 ‘ in the patient or in the person who undertakes  
 ‘ the cure.’ Sometimes triplicate quartans appear, and therefore the fits prolonged may change into continual, though this seems to happen not very frequently: but in the mean time autumnal continual fevers are sometimes observed to turn into quartan intermittents, after the violence of the disease has been subdued, as we before remarked from Sydenham. But for quintan and other intermitting fevers, which have longer intervals betwixt the fits, to change into continual, does not appear from any observations that I know of.

3. Upon this subject, consult what has been said in the comment to §. 757.

4, 5. See what has been said at §. 747. upon this subject. It was also remarked in the comment to §. 757, that cold is ranked in the principal place among those causes which are able to excite the febrile impression not yet entirely abolished, so as to put it into action. It will therefore seem not at all wonderful, if the accession of cold should increase an autumnal fever, since it is able to excite it when dormant. Moreover, it was remarked in the cure of intermitting fevers, to be frequently of service to make the patient a little warmer than usual betwixt the fits when the fever is off, and especially about the time of the approaching paroxysm; but the moderate warmth

B b 3

of

of the air in the spring, we see performs that which we otherwise attempt by art.

6. Vernal intermitting fevers, as we observed before, are of so mild a disposition, that they require no medicines, but generally go off spontaneously. They are only observed stubborn for some time in such people, as having their blood of a very weak crasis or texture, it is so easily dissolved, that they waste away with profuse and weakening sweats; but even in these they are curable, especially by the use of the Peruvian bark. But autumnal intermittents are much more difficult to remove, and often require the greatest attention of the physician, with many assistances of art, in order to cure them. But the method of cure which they require, varies according to the nature of the epidemical constitution or season, known by a faithful observation, with the different age, habit, &c. of the patient, the flux of humours lodged in the first passages, the obstructions of the viscera attending the fever, &c. concerning all which we treated before.

But although such different remedies may seem necessary, yet as Sydenham<sup>d</sup> justly observes, they may be reduced to two distinct classes. *Vel enim methodum, qua se natura liberare solet ab hoc morbo, caute solliciteque observando indicium sumere oportet, quo fermentationem abortam acceleremus, atque ita ad sanitatem ægros perducamus; vel in ipsam causam specificam penetrando, danda erit opera, ut remediis efficacibus ac specificis obviam eatur.* ‘ For either  
 ‘ the method ought to be followed, which na-  
 ‘ ture herself carefully observes in the removal of  
 ‘ this disease, wherein we endeavour to hasten the  
 ‘ fermentation begun, and by that means restore  
 ‘ the

<sup>d</sup> Sect. I. cap. 5. pag. 108.



‘ the patient to health ; or else by penetrating  
‘ into the specific cause itself, we must use our  
‘ endeavours to bring about the same effect by  
‘ powerful and specific remedies.’ Thus for ex-  
ample, in autumnal tertians we frequently observe,  
that in the time of the fits, the patients frequently  
evacuate a great quantity of bilious humours up-  
wards and downwards to their no small relief ; and  
therefore in the like case the physician imitates  
nature by art. Thus we see when a sweat arises  
in the end of a fit, that all the symptoms are  
relieved ; and therefore such a sweat is advan-  
tageously promoted with very good success, by  
the use of such things as very moderately and a  
long time promote sweat by increasing the quan-  
tity of the fluids (see §. 764.) Thus it was ob-  
served, that an autumnal quartan, increased by  
the winter’s cold, gradually dissolved and vanished  
by the warmth of the spring following : and there-  
fore physicians with very good success, keep up  
the patient’s strength with a corroborating diet of  
food easy to digest, and drinks of the stronger  
kind, that they may be able to support what must  
be bore for a considerable time ; and they likewise  
arm the body against the cold, by medicinal wines  
made of bitters and spices, which excite the lan-  
guishing actions of the chylicative viscera. But  
when the warmth of the spring begins to approach  
in the month of February, then more especially,  
care must be taken not to disturb the body by  
taking indigestible food, or by any other fault in  
the diet ; which is also very well admonished by  
Celsus<sup>e</sup>, when he says, *Cum vero vetus quartana*  
*raro, nisi vere solvatur, utique eo tempore attenden-*  
*dum est, ne quid fiat, quod valetudinem impediat.*

B b 4

‘ But

<sup>e</sup> Lib. III. cap. 16. pag. 147.

‘ But as an inveterate quartan is seldom removed  
 ‘ but in the spring, therefore great care must be  
 ‘ taken at that time, not to do any thing that may  
 ‘ be repugnant to health.’ But since about this  
 time a considerable alteration is observed to happen  
 in the bodies of animals, and the constitution of  
 epidemical diseases is then changed, as we observed  
 before; therefore physicians prudently endeavour  
 to increase the efficacy of the vernal warmth by  
 heating medicines, and generally with the best suc-  
 cess; whereas otherwise if such medicines were  
 used before, this method would often be attended  
 with danger. Hence Sydenham<sup>f</sup> advises the pa-  
 tient about that time, to undergo some consider-  
 able alteration in the air, either by travelling into  
 some warmer climate, or at least by changing the  
 place where the disease first invaded the patient.  
 But he would not have this attempted tooner than  
 about the beginning of the month of February.  
 But when this change of place cannot be com-  
 modiously complied with, he then gave warm  
 medicines at that time, *Ut uno quasi ictu langu-  
 escentem illam depurationem potenter promoveat, &  
 si fieri poterit, perficiat;* ‘ in order powerfully to  
 ‘ promote as it were, by one effort, the languish-  
 ‘ ing depuration of the blood, and if possible, to  
 ‘ complete it.’ Thus Celsus<sup>g</sup> observes, it is also  
 of use to sometimes change the diet in an inve-  
 terate quartan, and before the fit to let the patient  
 drink vinegar and mustard, strong wine, salt,  
 pepper, castor, asafœtida, myrrh, &c. *Per hæc  
 enim similiaque corpus agitandum est, ut moveatur ex  
 eo statu, quo detinetur.* ‘ For by these and the  
 ‘ like medicines, the body is to be put in motion  
 ‘ to

<sup>f</sup> Sect. I. cap. 5. pag. 115, 116.

<sup>g</sup> Lib. III. cap. 16. pag. 147.



to change the state in which it is at present held<sup>h.</sup> But if these hot medicines are given sooner, they double the quartan, or sometimes change it into a continual fever, as Sydenham prudently observes, and as Galen<sup>i</sup> long ago remarked. From all which it is sufficiently evident, that the general method for curing intermitting fevers, made use of by the ancient physicians, and confirmed by the testimonies of the moderns, is almost nothing more than an imitation of the methods, which nature herself prosecutes to free the patient from these diseases.

But the other method which penetrates into the specific cause of the fever itself, as Sydenham expresses it, differing from the preceding method, is either such as by disturbing the body produces an alteration or change in it, or else removes that latent disposition from whence the fits are renewed; as when we use purges or vomits, not so much to make evacuations, as to produce an alteration in the body (see §. 760.) or when by drinking some thin aromatic liquor with the warmth of the fire or of the bed, with frictions, inunctions of the spina dorsi, epithems, &c. we endeavour to subdue the first time of the febrile paroxysm and its first cause (see §. 756.) But that method of curing intermitting fevers, which is performed by the Peruvian bark, more especially deserves to be termed specific, since it is accomplished without any disturbances or evacuations. But when this method of cure is convenient, and under what circumstances it may be safely administered, has been said before at §. 767.

We

<sup>h</sup> Ibidem.

<sup>i</sup> Method. Med. ad Glaucon. Lib. I. cap. 12. Charter. Tom. X. pag. 356, 357.

We have now delivered the general history and treatment of fevers ; we have next considered and explained the nature and cure of the most common and urgent symptoms which usually attend fevers and lastly, we have treated of the general classification of fevers, namely, continual, remitting, and intermitting ; and we have remarked every thing which seemed necessary, either with respect to the diagnosis, prognosis, or cure of each of the classes, so far as they differed from what was laid down in the general history and treatment of fevers. It now remains for us to treat concerning acute diseases, which are indeed usually accompanied with a fever, but which have nevertheless their denomination not from the fever, but from the injured function of some organ by a particular inflammation.

## Of Acute Febrile Diseases.

### S E C T. DCCLXX.

**W**E come now to consider those acute diseases, which though accompanied with a violent fever, do nevertheless occasion a particular inflammation, in this or that organ, whence a name is given to the whole disease, from the injured function of the organ. Such are a phrenzy, coma, carus, quinsy, peripneumony, spitting of blood, pleurisy, inflammation of the breasts, of the diaphragm, stomach, liver, spleen, mesentery, intestines, (whence dysenteries, iliac passions, twisting of the guts, tenesmus, the piles, bilious colics) kidneys,



lneys, bladder, ureters, uterus, and joints, of the external integuments, as in the measles or small-pox.

What diseases may be termed acute, has been said before in the comment to §. 564; namely, such as either speedily kill the patient, or soon bring him to a period, and which are very urgent or violent, without intermissions, fits of accession, or severe pains. We also there observed, that a fever called acute, when it runs through its course swiftly, and with danger.

But though all the diseases here enumerated, are attended with an acute fever; so that much light may be afforded in the cure of them, from what has been already said of fevers, as also from what has been said under the title of inflammation; yet it will be worth our while, to treat of each of them separately, since according to the diversity of the parts affected, there are several peculiarities which deserve to be remarked, both in the diagnosis, prognosis, and cure.

But since in these diseases there is a particular inflammation of this or that organ, they are not simply termed acute fevers, but take their name from the injured function, as Galen<sup>k</sup> well observes. For after treating of diary fevers, he says; *diarum vero februm quædam ex inflammatione, quædam ex humoribus accenduntur. Et quæ ex inflammatione, velut inflammatarum partium quædam symptomata sunt, morbusque ab affecto organo denominationem ferè accipit, ut phrenitis, peripneumonia, alii similes.* ‘ But among other fevers, some arise from inflammation, and others from mor-  
‘ bid

<sup>k</sup> Method. Med. ad Glaucon. Lib. I. cap. 3. Charter. tom. X. pag. 349.

‘bid humours. Those which arise from inflammation, are in a manner symptoms of the inflamed parts, and the disease commonly takes its denomination from the affected organ, as phrenzy, peripneumony, and the like.’

The whole difference therefore in these diseases depends upon the parts affected where the disease is seated; and these diseases may likewise change into other inflammatory ones of the like kind when an acute fever and inflammation continuing the particular part of the body only is altered towards which the inflammatory matter is deposited. Thus inflammations of the pleura, lungs and diaphragm, often change into a phrenzy, as we shall declare hereafter.

Thus an inflammatory quinsy is relieved, when the external integuments of the neck and breast are invaded with an erysipelas or a phlegmon; the inflammatory matter which before oppressed the fauces, being now fixed in the more exterior parts.

In these diseases therefore, there is more or less danger in proportion to the nature of the part towards which the inflammatory matter is deposited by the fever; concerning which, see what has been said in the comment to §. 593, of the termination of a fever into another disease.

There are therefore three things to be considered in acute inflammatory diseases; namely, the acute continual fever, the inflammation, and the organ whose functions are injured by the present inflammation; and a careful attendance must be given how far the general method of treating fevers and inflammations before described, is agreeable to these diseases, and what is further necessary in each.



But these acute inflammatory diseases are enumerated in order, beginning at the head, and descending to the lower parts; and therefore a menzies comes first to be considered, as the last inflammation of the uterus: but to these are afterwards subjoined inflammations of the joints, and outer integuments of the body, as in the measles and small-pox. Yet we shall not exactly reverse this order in treating of these diseases hereafter. For concerning a coma we treated before among the symptoms of fevers; and with respect to a carus, since it is a slight sort of apoplexy, it will be better understood if we treat of it after the history of an apoplexy. But as a preceding hæmoptoe or spitting of blood, is so frequently followed with a phthisis, we shall therefore treat of it in the chapter of a phthisis. As inflammation of the breasts seldom happens but in child-bed women, or in such as give suck, we shall speak of it when we come to treat of the diseases of nursing women. But an inflammation of the spleen may be easily understood from the history of an inflammation in the liver, as we shall observe hereafter at §. 958. Thus also an inflammation of the mesentery requires the same treatment with an inflammation of the intestines; from whence it may be derived a knowledge of what relates to a dysentery, iliac passion, involution of the intestines, tenesmus, and piles, namely, so far as all these diseases arise from inflammation. But a bilious colic may be more especially understood from the history of inflammation in the liver. But what relates to the inflammation of the ureters or bladder, may be partly understood from the history of a nephritis, or an inflammation in the kidneys, and partly from what will be said hereafter of a calculus or stone in the kidney and ureter. Concerning

cerning an inflammation of the uterus, there likewise no particular place assigned to treat of it these aphorisms, but we may have an opportunity to say something of it among the diseases of child-bed women, since this disorder most frequently happens in the delivery. Inflammations of the joints, may be likewise understood from what will be said concerning the gout and rheumatism. But as the small-pox is a disorder most frequent amongst young children, therefore we shall treat of them after the diseases of infants. Concerning the measles, there is no particular treatment, perhaps because what relates to the knowledge and cure of these, may be derived from what has been said concerning febrile exanthemata or eruptions.

## Of a P H R E N Z Y.

### S E C T. DCCLXXI.

**I**F a perpetual delirium with a fierceness arises from the brain primarily affected, the disease is called a true phrenzy.

If it arises from a disorder in some other part transferred to the brain in a fever, inflammation, &c. it is called a symptomatic phrenzy, an alienation or deception of the mind.

The word phren among the Greeks, signifies the mind; and phrenas is used by them to signify wisdom or sense, whence phrenitis is so called (*τῶν φρενῶν νόσος*, *καὶ ἀρθρίτις τῶν ἀρθρῶν αὐτὴ πλεονεκτεῖ*) as being a disorder of the sense.



Sc<sup>1</sup>. For it seems to have been customary with the ancient physicians, to add the termination *itis* to a name denoting the part affected, more especially when they intended to signify an inflammatory disease of the same part, as is evident in the hepatitis, nephritis, &c. They therefore called this disorder in that part of the body, where the human mind is exercised, by the term phrenitis, which is therefore denominated by Pliny<sup>m</sup> (*sapientiae ægritudo*) a disorder of the sense or wisdom, where he enumerates from Hippocrates, the fatal signs in this disease. But since both raving and melancholy mad people are likewise disordered in their sense or wisdom, therefore Celsus<sup>n</sup> has judiciously distinguished a phrenzy from these diseases, by saying, *Incipiam ab insania, primamque hujus phrenitis partem aggrediar, quæ & acuta, & in febre consistit. Græci φρενίτιν appellant.* ‘I shall begin with madness, and first proceed to that kind of it which attends an acute fever. The Greeks call it phrenitis.’ But to distinguish a phrenzy from a delirium, concerning which we treated at §. 700, among the symptoms of fevers, he remarks, that sometimes indeed in the height of the fever the patient is deceived or alienated in mind, and talks improperly; yet after the violence of the fever is abated he recovers his right mind: but then at length a phrenzy attends, *Phrenitis vero tum demum est, cum continua dementia esse incipit; aut cum æger, quamvis adhuc sapiat, tamen quasdam vanas imagines accipit: perfecta est, ubi mens illis imaginibus adlieta est.* ‘When the mind begins to be continually alienated, or when the patient entertains  
 ‘ some

<sup>1</sup> Salmas. Epist. 36. pag. 79.

<sup>m</sup> Hist. Nat. Lib. VII. cap. 51. pag. 166.

<sup>n</sup> Lib. III. cap. 18. pag. 148.

‘ some vain imaginations or ideas, although he is  
 ‘ yet in some measure sensible: but a perfect  
 ‘ phrenzy is when the mind firmly adheres to or  
 ‘ believes those false imaginations or ideas.’

But it was observed in the comment to §. 700 that where this internal disposition of the brain causing the dilirium is so fixed, that it equals, or even exceeds those changes of the common sensory which arise from external objects acting upon the organs of sense, it is often followed by the judgment and violent passions of the mind, and then there is a fierce dilirium, in which the patient endeavours to injure himself or the by-standers.

There is therefore a perpetual delirium with an acute continual fever attending in a true phrenzy; and this dilirium is commonly fierce or raving, from the violent change made in the common sensory. But this fierceness does not always attend, as we proved before in the comment to §. 700; and this especially when the ideas, arising from such a morbid change in the common sensory, are not attended with the pleasure or displeasure that usually excites passions of the mind, but they are adiaphorous, or attended with a sort of indifference. That there are such phrenzies, and indeed of the worst kind, in which the patient is obscurely delirious without any raving, has been before demonstrated from Hippocrates and Galen under the section last cited.

Another thing to be observed in a true phrenzy, is, that the brain is primarily affected in this disease; that is to say, the cause of the disease is not produced in some other part of the body, and transferred from thence to the brain, but that it is seated in the brain itself, or its investing membranes from the very first attack of the disease, although by the violence of the fever the disorder

may



may be increased, which is already seated in the brain. For the ancient physicians call the disorder a true and exquisite phrenzy, only when the brain itself is primarily affected. Thus Galen<sup>o</sup> says, *Phrenitis siquidem exquisita, & non permista alteri morbo, fit bile flava locum, in quo princeps animæ pars residet, prebendente.* ‘ That indeed an exquisite phrenzy not mixed with any other disease, arises from yellow bile invading that part where the principal faculties of the mind reside.’ And in another place<sup>p</sup>; *Flava bilis, si in cerebrum ipsiusque membranas se firmaverit, phrenitides efficit. Priusquam autem se firmaverit, per ipsarum venas diffuens, non phrenitides, sed in febrium vigoribus deliria invehit.* ‘ That if yellow bile fixes itself in the brain or its membranes, it causes a phrenzy. But if it flows through the vessels before it thus fixes itself, it produces not phrenzy, but a delirium in the height of fevers.’ But although we at this day know that a phrenzy may be produced from other causes, and that it does not always arise from yellow bile, yet the passages cited from Galen, demonstrate he was of opinion, that in a true phrenzy the brain itself or its membranes, are primarily affected; as indeed he expressly declares in another place, by saying\*, *Neque enim per consensum in eo morbo cerebrum afficitur, sed propria & primaria affectione laborat.* ‘ That the brain itself is not affected by consent in a phrenzy, but labours under a proper and original

VOL. VII. C c

\* Comment. 1. in Lib. I. Prorethetor. Hippocr. Charter. Tom. VIII. pag. 694.

<sup>p</sup> Comment. 2. in Lib. I. Epidem. Charter. Tom. IX. pag. 69.

\* De locis affect. Lib. V. cap. 4. Charter. Tom. VII. pag. 489.

‘ ginal disorder in itself.’ The like is also affirmed by Cœlius Aurelianus <sup>a</sup>, who has carefully collected together the opinions of the Greek physicians, according to their division into separate parties or sects, and gives us the following passage from Asclepiades. *Phrenitis est corpusculorum stasio, sive obtrusio in cerebri membranis frequenter sine consensu, cum alienatione & febribus.* ‘ A phrenzy ‘ is a stagnation or obtrusion of corpuscles in the ‘ membranes of the brain, frequently arising with- ‘ out any consent or distant cause, with an alie- ‘ nation of the mind and a fever.’

But when that which is now lodged in the brain or its membranes, so as to produce a phrenzy, was before formed or collected in some other part of the body, and excites disease by disturbing the functions of those parts in which it resides; but afterwards being set at liberty from the part first affected, if it is translated from thence by metastasis to the brain or its membranes, and excites a fierce or perpetual delirium, with an acute continual fever, the disorder is then also termed a phrenzy; but because the brain itself was not primarily affected, but only secondarily, therefore it cannot be called a true but a symptomatic phrenzy. But in both cases the same part is affected, and the matter of the disease is the same, namely, inflammatory; so that the whole difference betwixt a true and symptomatic phrenzy, wholly consists in that the cause of the latter disturbing the brain was first lodged in some other part, and afterwards translated to the encephalon. For since we here treat only of inflammatory diseases joined with an acute fever, we have no concern with such causes, as being seated in

<sup>a</sup> Acutor. Morbor. Lib. I. in Præfat. pag. 2.



in other parts of the body, are able to disturb the brain, so as to produce the most wonderful and fierce deliria, even though the causes remain in their first seat, and are not translated by metastasis to the brain itself or its membranes; concerning which, see what has been said in the comment to §. 701. For it was there proved, that foul humours collected about the præcordia, may disturb all the functions of the brain; but in such a manner, that when they are expelled, the functions of the brain immediately return to their healthy state: and therefore it is justly concluded, that no topical cause attended in the brain at the time when its functions were disturbed, but that the cause of all those disorders was lodged in other very distant parts.

But this distinction betwixt a true and symptomatic phrenzy is necessary, because a great difference is often required in the treatment or cure of these two kinds of the disorder, as we shall declare hereafter at §. 782. But sometimes such a symptomatic phrenzy is called a deception or alienation of the mind, though with less propriety, since the ancients have by that name intended a delirium which is not perpetual, but attends only in the height of fevers; as is evident from the several passages cited from Galen<sup>r</sup>, and as we observed before in the comment to §. 700. But now as there are various kinds of deliria, according to the different degree of the morbid disposition in the brain; so the same is likewise true of a phrenzy, as is evident from the passage of Galen, where he says<sup>s</sup>, *Quippe phrenitici quidam*

C c 2

in

<sup>r</sup> Vide Foëhi Oeconomiam & Gorraei Definitiones ad vocabulum παραφρεσύνη.

<sup>s</sup> De Locis affectis, Lib. IV. cap. 2. Charter. Tom. VII. pag. 454.

*in rebus sub aspectum cadentibus dignoscendis nihil errantes a naturali intellectus judicio aberrant : alii contra cogitatione quidem falluntur minime, sensibus tamen difformiter moventur : sunt præterea qui sensus simul & cogitationes vitio laborant.* ‘ For some  
 ‘ phrenitic patients do not err in their natural un-  
 ‘ derstanding and knowledge of things, which  
 ‘ fall under the examination of their senses, but  
 ‘ only they are out in their judgments : others on  
 ‘ the contrary, are not at all deceived in their  
 ‘ thoughts or judgment, but only the organs of  
 ‘ the senses are disturbed or moved ; but there  
 ‘ are others again, who are disordered both in  
 ‘ their organs of sense, and in their thoughts or  
 ‘ judgment at the same time.’ Galen confirms  
 what he here says, by instances both in himself and  
 in other patients.

## S E C T. DCCLXXII.

**A** True phrenzy is preceded by a violent inflammatory heat and great pain within the head ; by a plethora or too great a quantity of blood, or an inflammatory disposition of it, a redness of the eyes and face, a disturbance of the sleep, and slight deceptions of the senses, the patient being youthful, the use of heating things, being exposed to the sun, overwatchings, anger, grief, crossness, or fierceness of temper, sudden forgetfulness, a driness of the whole body, but more especially of the brain, and a gathering or catching at something supposed to lie upon the bed-cloaths,

We



We come now to treat of the antecedent signs or causes, which usually go before a phrenzy, whether true or symptomatic. For as this disorder is so dangerous and so difficultly curable when it is fixed, all endeavours must be used, to know whether there is just reason to fear it, that so the most efficacious remedies may be timely applied, whereby a future phrenzy may be prevented, or that which is beginning to be present, may be directly removed. But we know that a phrenzy is at hand, when such causes have preceded, as are disposed to excite inflammation, especially in the head, or if the inflammation formed in other parts, is determined thence towards the head; as also if in acute fevers the signs appear of an injury in the functions of the brain. But each of these are to be separately considered.

A violent inflammatory heat, and great pain within the head.] When we treated of the signs of inflammation (§. 382.) it was demonstrated, that a pricking pain from the small fibres of the distended vessels being near to breaking, and an increased heat with a fever, and a sense of throbbing or pulsation attended in every inflammation. And from these signs chiefly, we judge of the presence of an internal inflammation, when the other signs, as tumour, redness, tension, or hardness, &c. can only be perceived in external parts of the body inflamed. When therefore in an acute fever a violent and constant pain attends in the head, with a sense of great heat and pulsation, we know an inflammation is to be feared in the meninges of the brain, which inflammation is the proximate cause of a true phrenzy, as we shall hereafter demonstrate at §. 776. For that the cortical part of the brain, though inflamed, is not sensible of pain, seems very probable from what has been said of

C c 3

that

that part, in the history of wounds in the head. For it there appeared, that excrescences of the brain might be tied, cut off, or corroded without pain. Therefore this internal pain of the head, seems to arise from the distension of the vessels dispersed through the membranes of the encephalon, by too great a quantity of blood impervious from an inflammatory tenacity. Hence also Galen<sup>r</sup> places the cause of an obstinate head-ach in the meninges of the brain. It is indeed true, that not every pain of the head in acute inflammatory fevers, is seated in the meninges of the brain, since a head-ach may be excited, even by consent from other parts of the body disordered, as for example, when corrupt bile is lodged about the præcordia, as we have already often observed, and as Galen<sup>u</sup> himself has remarked. But the heat and other signs of an internal inflammation in the head, readily demonstrate to which of these causes the pain of the head ought to be ascribed. Hence therefore Trallian<sup>w</sup> has well distinguished phrenitic patients from those which have a sympathetic delirium, because that in a phrenzy the head is hot. Concerning which, see what has been said at §. 701.

Hence the reason appears why Hippocrates<sup>x</sup> condemns continual and intense pains of the head as fatal in fevers, and observes, that the same in acute diseases presages a phrenzy, unless prevented by a salutary hæmorrhage from the nose<sup>y</sup>.

A ple-

<sup>r</sup> De Locis affectis, Lib. III. cap. 13. Charter. Tom. VII. pag. 448.

<sup>u</sup> Method. med. ad Glaucon. Lib. I. cap. 16. Charter, Tom. X. pag. 364.

<sup>w</sup> Lib. I. cap. 13. pag. 45.

<sup>x</sup> In Prognostic. Charter. Tom. VIII. pag. 606, & 671.

<sup>y</sup> In Coac. Prænot. N<sup>o</sup> 120. ibid. pag. 858.



A plethora or too great quantity of blood.] It was demonstrated in the comment to §. 106, that the arteries both sanguiferous and lymphatic might be over dilated merely from too great a quantity of blood, so as to produce an inflammation, and the many other disorders consequent thereupon. In the same place it was also proved, that the functions of the encephalon might be disturbed, especially by a plethora. All which will be greatly increased, when the blood rarefied by the febrile heat still more distends the vessels in which it is contained; and therefore it is evident why a plethora is justly ranked among the antecedent causes of a phrenzy.

An inflammatory disposition.] This is said to attend when people are from a natural habit inclined to inflammatory diseases. But such diseases happen to those people chiefly who have strong and contracted vessels, with dense and acrid humours moving swiftly through the vessels. The pulse in such people is commonly larger and quicker, the body thin, active, strong and warm. The bodies of people daily accustomed to hard labour acquire such a disposition. This diagnosis is confirmed, if they have before laboured under acute and inflammatory diseases.

A redness of the eyes and face.] For this denotes that the blood is conveyed too copiously and impetuously to the head, so as to over distend the vessels. The blood is indeed distributed to the face chiefly by the branches of the external carotid, but it is conveyed to the eyes also by small branches of the internal carotid, and therefore from this sign we know that the internal parts of the head are affected in the same manner. For this reason, a redness of the face and eyes was

reckoned among the signs of a future hæmorrhage at §. 741.

A disturbance of the sleep.] If together with the preceding signs of an inflammatory disposition in the blood, and its too great determination towards the head, there arises the troublesome symptom of restless watchings, which physicians usually call a coma vigil, (see §. 703.) namely, when the patient being on the brink of sleep, suddenly awakes again with a fright; in this case, or if the patient sleeps with frightful or disturbing dreams, we know that the brain begins to be affected from the free course of the blood being obstructed thro' the vessels, and that therefore in a short time a phrenzy or other symptoms of the worst kind may be expected, as we said before upon another occasion at §. 735. Hence likewise Hippocrates<sup>2</sup> makes a profound and undisturbed sleep, a sign of a sure crisis or termination of the disease; but on the contrary, he condemns a disturbed sleep.

Slight deceptions of the senses.] When the patients ideas are not excited agreeable to external causes, but proceed from an internal disposition of the brain, a delirium is then said to attend, as we made evident at §. 700; where we also affirmed, that there may be various degrees of such a delirium. But a slight deception is said to attend, when those ideas arising from an internal and morbid disposition of the brain, are not followed with a judgment nor any violent passions of the mind; for in that case the ideas raised may be corrected, by reason, and the persuasion of those who are present. But in the mean time, if the same causes continue to act, it is evident enough, that there is just reason to fear a fierce and perpetual delirium.

<sup>2</sup> Coac. Prænot. No. 152. Charter. Tom. VIII. pag. 860.



delirium. Moreover, in the comment to §. 700, it was observed, that sometimes only a slight deception appears, though the causes disturbing the common sensory are sufficiently violent. Of this kind were those tremblings and obscure deceptions, which Hippocrates justly calls very phrenitic, as we there observed.

The patient being youthful.] The observations of all physicians testify, that the flower of a person's age is the most liable to inflammatory diseases; but when people incline to old age, they are less afflicted with these diseases, and oftener disordered rather with such as are chronical and extremely obstinate. But not only people in their youth, but likewise such as are adult and in the full strength of their age, are frequently subject to the same acute diseases: whence Hippocrates says<sup>a</sup>, *Ab anno decimo quarto usque ad quadragesimum secundum natura corporis morborum omnis generis ferax fit.* 'That from the fourteenth to the forty-second year of age, all kind of diseases of the body are of a fierce nature.' And in another place<sup>b</sup> enumerating the various diseases of the several ages of life, he observes, that people in their youth are subject to a spitting of blood, consumption, and acute fever; but that those who are past the age of youth, together with other acute inflammatory diseases, are subject to phrenzies.

The use of heating things.] The truth of this too often appears by unhappy instances, when hopeful youths, by too freely using strong wines or fermented spirits, fall into the most acute inflammatory diseases, and perish phrenitic. This appears

<sup>a</sup> Ibid. N° 512. pag. 882.

<sup>b</sup> Aphor. 29, 30. Sect. III. Charter. Tom. IX. pag. 125, 126.

appears from some instances alledged from Hippocrates and Galen, in the comment to §. 586. N° 1. where we treated of the particular causes of fevers. There are almost an infinite number of cases in medical history, which confirm the same thing.

Being exposed to the sun.] More especially if people expose themselves for a long time to the rays of the sun in summer, with the head not well covered: for then the integuments of the head and the skull itself, may be so much heated, that the blood may begin to coagulate from the too great heat; from whence arises a most malignant phrenzy, which is often suddenly fatal. It is indeed true, that people may be always able to avoid such a troublesome degree of heat, by being admonished from the disagreeable sense; yet those who travel through open countries in the summer heats, are sometimes obliged to endure it; and hence frequently whole armies suffer great loss or destruction. Nothing is more dangerous than for any one to sleep with his head exposed to the rays of the sun. I remember two reapers very strong and healthy, who thus perished in the space of two hours, when lying down upon a heap of hay, they slept with their heads naked and exposed to the noon sun: for being awaked by their companions, they stammeringly uttered some incoherent words, and soon after both of them expired. Nor will this seem strange if we consider, that wood, stones, metals, and the like, exposed to the sun's rays in the summer, may be so much heated, as even to injure the hand of those who touch them with pain. Thus we read, when Manasses the husband of Judith, in the days of harvest, stood over those who were binding up the handfuls, he died,



lied <sup>c</sup>, *Venit enim æstus super caput ejus.* ‘ For the heat came upon his head.’

Overwatchings.] From too long wakefulness the smallest solids are wore away, more especially those of the brain, as all the functions of the brain continue to act incessantly without resting; the thinnest part of the blood is dissipated, and the rest consequently thickened, as we have seen at §. 625. N<sup>o</sup> 12. and likewise the humours require a greater acrimony from the same cause. But the thickness and acrimony of the blood being increased together, may produce inflammations of the worst kind, as is evident from what has been said in the history of inflammation. It is likewise evident from what has been delivered at §. 708, that continual watchings in fevers have generally for their cause a slight and incipient inflammation beginning to invade the brain. And therefore watchings are prejudicial, both as a sign of a future phrenzy, and as a cause capable of producing this disease; and hence Hippocrates says <sup>d</sup>, *A vigilia convulsio aut delirium malum.* ‘ That convulsions or a delirium after watchings, is a bad sign.’

Anger.] Which is not without reason said to be a short madness; for a person enraged with severe anger differs in nothing from a person in a raving phrenzy; for a great heat is kindled, the pulse becomes full, quick, and strong, the eyes become fierce, protuberant, and sparkling, and are often suffused with blood, the face appears fierce and terrible, threatening every thing dangerous, whereby the patient frequently endeavours to injure himself or others.

*Nunc*

<sup>c</sup> Judith. cap. viii. vers. 2, 3.

<sup>d</sup> Aphor. 18. Sect. VII. Charter. Tom. IX. pag. 300.

*Nunc facie supposita fervescit sanguis, & ira  
Scintillant oculi : dicisque, facisque, quod ipse  
Non sani hominis non sanus juret Orestes<sup>e</sup>.*

Since therefore the functions of the brain are so much disturbed by anger, and the motion of the humours is rendered much quicker than in health, and all the signs denote that the blood is sent very copiously and impetuously towards the head, it readily appears, that if an acute fever follows from this violent passion of the mind, there will be danger of a phrenzy. Such an instance of a phrenzy arising from anger, is given us from Hildanus<sup>f</sup>.

Grief.] More especially if people of a generous and great mind, being furnished with a plentiful fortune, come afterwards by misfortunes to want, and oppress themselves tacitly with their calamities. That melancholy and madness may arise from grief, will be made evident hereafter in the history of melancholy; but madness differs from a phrenzy only in its not being attended with a fever. If therefore in such a case a fever shall be kindled from any other cause, a phrenzy almost constantly follows. Even sometimes grief a long time suppressed, suddenly breaks out into action without being assisted with any other cause. This the celebrated Boerhaave saw in a noble widow, who losing in her husband all hopes of providing for her numerous family, but being herself only conscious of her calamity, was over pressed to the last degree with grief: when he saw her ill with a slight fever, upon her giving a fierce answer, though she was a woman  
of

<sup>e</sup> A. Persii Sat. 3. in fine.

<sup>f</sup> Cent. 1. observ. 17. pag. 24.



of a most mild disposition when in health, in two hours afterwards she became raving, and tearing her cloaths, ran naked about the chamber. Hippocrates<sup>2</sup> has remarked a phrenzy to arise from grief, in the wife of Dealcis, *quam febris horrida & acuta ex mœrore prehendit*, 'who was taken with a terrible acute fever from grief,' and who was continually phrenitic, even from the beginning of the disease to the twenty-first day, when she expired.

Crossness or fierceness of temper, sudden forgetfulness, and a gathering or catching at something supposed to lie upon the bed-cloaths.] For all these denote that the common sensory begins to be disturbed, and more especially, great attention is required to these signs, as the disorder requires speedy relief before it is any thing confirmed. Therefore as soon as a person who is naturally timorous begins to speak boldly and threaten, or if they were before good tempered, but now give a fierce answer to the physician or their friends, or of asking for drink or any thing else, they soon after forget it, and deny that they called for it, in that case the most efficacious remedies must be instantly applied to prevent the approaching phrenzy. See what has been said concerning these and many more signs of the like nature, in the comment to §. 702, where we treated of all these particulars.

Driness of the whole body, and especially of the brain.] The whole body is soft and moist in health, even in its external surface, and much more internally; as we are taught from wounds penetrating into the cavities of the body, and from the dissection of living animals. But such an equable

<sup>2</sup> Epidem. 3. ægrot. 15. Charter. Tom. IX. pag. 30.

equable moisture of the body, is justly esteemed one of the best signs in diseases, as it denotes all the vessels and humours to be pervious. But, on the contrary, when the body appears dry, we know that there is a scarcity of the most thin moisture, and that the blood becoming impervious, overdistends the larger vessels, whence the adjacent smaller ones are compressed; as we said more at large in the comment to §. 739. But such a dryness of the brain therefore denotes an imperviousness of the humours through the encephalon, which we know from the dryness of the adjacent parts receiving their humours from the same arteries with those of the encephalon. Hence a dryness of the internal parts of the mouth and tongue, with a squeaking voice thence arising, demonstrate this. Hence Hippocrates makes a dry tongue the sign of a phrenzy, as we observed at §. 702. But more especially a dryness and dusty appearance of the eyes, indicate the same disorder of the encephalon, because through the eyes are distributed branches from the internal carotids. Hence the reason is evident, why the parts of the fauces being contracted and foul in acute diseases, with a difficulty of shutting the mouth after the patient has been gaping, presage a delirium, which turning into a phrenzy, is pronounced by Hippocrates<sup>h</sup> to be very bad; for all these signs denote a dryness of the parts. Hence also the reason is evident, why Hippocrates in another place makes a shrill voice, and foul or dusty eyes, the forerunning signs of a delirium<sup>i</sup>.

<sup>h</sup> Prorrhetic. Lib. I. text. 11. Chapter. Tom. VIII. pag. 707.

<sup>i</sup> Ibid. text. 17. pag. 712.



But all those signs which precede a true phrenzy, are fairly collected together by Galen<sup>k</sup>, who confesses himself to have taken them from the more ancient physicians, for these are his words. *Tam interdum vigilias præcedere; sive etiam somnos manifestis phantasmatibus turbatos, ut & clamant nonnulli & exilient, videre est; interdum vero irrationalis accedit oblivio, ut laborantes aliqui, quum matellam petierint, mejere tamen negligent, aut quum matellum emittunt, matellum ipsam prodere haud quaquam meminerint; vel majori cum tumultu, aut meritate respondeant, præsertim ubi aliquis antea fuit moderatus. At & hi omnes exiguò utuntur potu, & respiratio magna & rara est, & pulsus minores magisque novosos habent: nonnunquam occiput dolor infestat. Quum vero jam proxime ad phrenitidem accedunt, oculos habent vehementer squalidos, & ex altero ipsorum acris lacryma effunditur, ac deinde sanguis habent, & venas ipsorum sanguine plenas, & sanguis stillat e naribus. Quo tempore neque jam sane ut mentis compotes respondent, floccos avellant, & festucas carpunt, &c. Quid dicam de lingua aspera, auditu quandoque hebetiori, tum quod interdum mæsti jaceant vix respondentis, vel quum pars quædam dolorificum patiatur affectum, etiamsi vehementius aliquis eam tangat, ipsi haud quaquam sentiant.* ‘ For sometimes watchings precede, or the sleep is disturbed with manifest fancies or apparitions, while some cry out, and seem to start up; but sometimes an unreasonable forgetfulness attends, so that when they have called for the chamber-pot they yet neglect to make water, or when they have made water, they do not at all remember that the chamber-pot was given  
‘ them;

<sup>k</sup> De Locis affectis, Lib. V. cap. 4. Charter. Tom. VII. pag. 489.

‘ them; or else they answer more hastily and  
 ‘ sharply, especially when the patient was before  
 ‘ of a mild disposition. But all these drink little,  
 ‘ the respiration is large and slow, and they have  
 ‘ the pulse less and harder, or more nervous than  
 ‘ usual: sometimes a pain invades the occiput.  
 ‘ But when the patient is just upon the brink of  
 ‘ a phrenzy, the eyes appear very rough, tears  
 ‘ are poured out from the bottom of them, and  
 ‘ are afterwards turned into gum or scales, while  
 ‘ their vessels appear full of blood, and blood  
 ‘ distils from the nose. At the time when the  
 ‘ phrenzy is advanced, they manifestly answer in-  
 ‘ consistently, catch or pull at the bed-cloaths, or  
 ‘ at straws or other matters, which they suppose  
 ‘ to lie upon them, &c. To these I might add  
 ‘ something concerning the roughness of the  
 ‘ tongue and hearing, which is sometimes more  
 ‘ than usually dull, likewise that the patient some-  
 ‘ times lies sorrowful, hardly giving an answer,  
 ‘ or when any part affected suffers pain, and they  
 ‘ do not perceive it, even though any one violent-  
 ‘ ly handles it.’

But the symptomatic phrenzy is preceded  
 almost by every acute disease with a fever, a  
 pain of the side not pleuritic, with a slight  
 disturbance of the mind, an inflammation of  
 the pleura, lungs, or diaphragm, which are  
 violent, or very bad; this kind of phrenzy is  
 therefore presaged by a black tongue, suppres-  
 sion of the stools, retention of the urine, white  
 colour'd stools, which are always fatal; a pale,  
 colourless, thine urine, no thirst, fierceness and  
 redness of the countenance, the urine having  
 a black



a black cloud suspended in it, with watchings or an inability to sleep, all which are the signs of an inflammation approaching in the head.

But a symptomatic phrenzy arising from the disorder translated from some other part to the brain, may follow almost from every acute disease joined with a fever. But we demonstrated at §. 587, that the most fluid parts of the humours are expressed by the fever, while the rest are incrassated, so that the humours become impervious; hence an obstruction and inflammation may happen in the smallest vessels of the encephalon. Moreover, when the fever by too impetuous a motion tends to death and destruction (see §. 592.) it is evident, that the worst inflammations of the viscera are to be feared, and those suddenly fatal. The same thing also happens, when the fever terminates in another disease, by depositing the febrile matter upon various parts of the body (see §. 593.)

But besides this, practical observations teach us, that inflammatory pains arising in various parts of the body with an acute fever, have sometimes vanished without any good signs, and then there is the most dangerous metastasis or translation of the morbid matter towards the brain, so as to produce a symptomatic phrenzy. A notable instance of this is related by Hippocrates<sup>1</sup>. In Calvus of Larissa a great pain suddenly invaded the right thigh, and on the first day of the disorder an acute ardent fever attended; on the second day the pain of the thigh indeed abated, but without

<sup>1</sup> Epidem. 3. ægrot. 5. Charter. Tom. IX. pag. 299.

any good signs, for the fever was increased, and the patient got no sleep, the extremities of the body being cold, &c. On the third day the pain of the thigh ceased, but the patient was phrenitic and very restless, and perished very suddenly on the fourth day about noon. A like case I saw in a woman, who after the first appearance of a fever, had a constant and most acute pain in the calf of the left leg; but they had applied rags dipped in spirit of wine to the naked part, and after two hours, the pain disappeared in the leg, the patient became very delirious, and soon after expired with convulsions on the second day of the disease. It was said before in the comment to §. 593, that sometimes a fever arises in the most healthy people, without any known cause preceding, by which a violent phlegmon is suddenly excited in this or that part of the body, where the inflammatory matter being deposited the fever ceases; but the event of such cases depends chiefly upon the nature of the part affected, rather than the matter deposited by the fever. But then the matter which is once in this manner deposited upon some part, may again remove and be transferred to other parts of the body. Thus we observed in the comment to §. 724, that an erysipelas may come from within outwards and the reverse. It will hereafter appear in the history of a quinsy, that the disease is relieved when the neck and breast look red; and that the most fatal consequences are at hand, when that redness returns inward again; as also when a quinsy returns upon the lungs, as Hippocrates has observed. The same thing may happen in a pleurisy, peripneumony, and the like, so that those diseases may seem to be relieved without any good signs, while in the meantime the brain itself becomes affected



by a bad translation. But this propensity to a phrenzy, is observed chiefly in those diseases in which there is a manifest inflammatory disposition; but yet the inflammation does not very obstinately adhere to any one part, but the morbid matter seems more moveable and wandering. Hitherto perhaps relates the pain of the side not pleuritic with the slight disturbances of the mind, which Hippocrates mentions <sup>m</sup>; when he says, *Cum lateris dolore, non tamen pleuritico, & turbulentis tenuibus lenibus hi phrenitici fiunt.* 'When there are slight and gentle disturbances of the mind, with a pain of the side not pleuritic, such patients become phrenitic.' But those slight and gentle disturbances, may be very well understood to mean a slight disorder of the mind. Relating to this opinion, is the place given us elsewhere by Hippocrates <sup>n</sup>; *Lateris dolor, ex sputis biliosis, & absque ratione evanuerit, in furorem aguntur.* That if a pain of the side, with a bilious spitting goes off without any manifest reason, such patients are taken with a raving.' For pains of the side, in order to denominate them pleuritic, ought to be considerably sharp and pricking, so as to obstruct the inspiration, with an almost perpetual cough (see §. 875.) and therefore it is not repugnant for a pain of the side to be joined with a fever without a pleurisy. Hence likewise Hippocrates <sup>o</sup> in enumerating the diseases of the winter time, includes pleurisies and pains of the sides in the same aphorism. Nor yet are these slight in-

D d 2

inflammatory

<sup>m</sup> Coac. Prænot. N° 411. Charter. Tom. VIII. pag. 376.

<sup>n</sup> Prorrheticorum, Libro I. Charter. Tom. VIII. pag. 767.  
& Coac. Prænot. N° 418. ibid. pag. 876.

<sup>o</sup> Aphor. 23, Sect. III. Charter Tom. IX. pag. 118.

flammatory pains observed only in the sides, but they likewise appear in other parts of the body, when there is a great propensity to a symptomatic phrenzy. Thus Sydenham<sup>p</sup> testifies, that he has observed a kind of epidemic fever, in which the blood taken from a vein, often resembles that in a pleurisy, and that in the first invasion of this disease, there was a pain in the neck and fauces, but slighter than what is usual in a quinsy: but so great an inclination was there to a phrenzy in this fever, that it sometimes spontaneously tended to it, or at least if the regimen was a little hotter than usual, the patient continually confined to the bed or the like, a phrenzy most certainly invaded. Here it is to be observed, that as in the former case a pain of the side not pleuritic attended, so in this a pain of the neck and fauces was perceived, but slighter than in a quinsy.

But it is to be observed, that in a pleurisy and the like inflammatory diseases which impede the free respiration, the blood cannot pass but with difficulty through the lungs; whence the right ventricle cannot commodiously evacuate itself, and therefore, that the venal blood returning from the head, cannot freely pass into the right sinus and auricle; but when the arteries continue to send on the blood towards the encephalon, while at the same time the veins cannot return the blood, all the sanguiferous vessels will continue greatly distended by it, so as to compress the other small vessels, and disturb the functions of the brain. This is the other kind of symptomatic phrenzy, which is indeed very bad, and commonly fatal in a short time, as it may be produced from the inflammatory diseases of other parts: but in such a  
case

<sup>p</sup> In *Schedula monitor. de novæ febris ingressu*, pag. 651.



case a phrenzy arises without a translation of the morbid matter, since the former disease continues, as is evident enough. But an inflammation of the diaphragm is the worst of all those acute diseases, which usually produce a symptomatic phrenzy; as will appear hereafter, when we come to treat of a paraphrenitis under its proper head.

It now remains for us to consider those signs which denote other diseases inclining to a symptomatic phrenzy.

Black tongue.] For this denotes either a deficiency of the thin lymph of the blood, or that the larger vessels distended with the impervious blood compress the adjacent smaller ones, whence the exhaling arterial ducts placed upon the surface of the tongue, become dry and gangrenous. Hence a black tongue, especially if it is dry at the same time, presages the very worst condition of the humours; concerning which, see what has been said in the comment to §. 739. Hence therefore Hippocrates ranks a dry and rough tongue among the signs of a phrenzy, as we observed before at §. 702.

A constipation of the bowels with white stools.] It is well known, that by urine and stool are evacuated from the body, such parts as would be injurious if any longer retained, as they consist of the fæculencies separated from the healthy humours, changed and rendered acrid by the circulation itself, or else the remaining fæces accumulated from the ingested aliments, after they have undergone the action of the stomach and intestines, and are likewise equally necessary to be evacuated. But in acute diseases, when the oily and saline parts of the blood become more acrid from the increased velocity of the circulation (see §. 100, and 689.) and the

bile especially rendered more acrid, inclines to putrefaction, there is still a greater necessity for these excretions to be continued. When therefore the stools are suppressed, or the urine retained, those acrid parts will continue in the body which ought to be expelled. The same thing will likewise happen, if the discharges by urine or stool do not contain those acrid or corrupt parts, which ought to be expelled by those outlets, as happens when the intestinal fæces are white, and the urine pale, thin, or colourless. For we then know that such acrid parts are retained in the body, which ought to be expelled by these ways; and that they either continue mixed with the blood, or else being separated from thence, are collected in the bladder or intestines, being afterwards absorbed by the bibulous veins of these parts, and mixed with the blood. But when such acrid parts are moved with the blood, they offer the greatest injury to the most tender vessels; and therefore there almost constantly follows an injury in the functions of the brain, as appears in those who die of a perfect ischuria or suppression of urine. But there is hardly ever a considerable degeneration of the humours observed, but there is likewise a disturbance in the functions of the encephalon at the same time. When in pale virgins crude humours flow through the vessels instead of good blood, we very frequently observe giddiness, tinkling in the ears, sluggishness, or aversion to exercise, palpitations of the heart, fainting fits, &c. The like appearances are also observed in the scurvy, gout, and many other diseases drove inward. Even the fabric of the encephalon is so easily irritable, that the blood of another healthy animal received into the human veins, cannot safely flow through the vessels



vessels of the encephalon: for Dionis<sup>a</sup> tells us, that when a transfusion of the blood was rashly attempted, from a calf into the human veins, the unfortunate people, upon whom the experiment was made, soon after turned mad and expired raving. It is therefore evident when such things are retained, which ought to be expelled, or when the excretions do not contain those parts which ought to be thrown out from the body, there is just reason to fear a phrenzy in acute diseases.

Hence a suppression of the stools is condemned in fevers by Hippocrates<sup>r</sup>, who in another place<sup>s</sup> reckons a constipation of the bowels among the signs of a future opisthotonos. Galen<sup>t</sup> indeed, in his commentaries to this place remarks, that a suppression of the stools is not properly a sign of affections in the brain; but in the mean time he confesses, that disorders of the brain are increased and rendered worse when the bowels are constipated. This is also confirmed by Hippocrates<sup>u</sup> in his Coan prognostics, where he says, *Qui in febris exsudant, capite dolentes, alvo suppressa, convulsi sunt.* ‘ That those who sweat and have  
‘ a pain in the head with a suppression of the  
‘ stools in fevers, become convulsed.’

But if the stools are white, we know that there is a retention of the bile, which gives them their usual and healthy colour; and therefore, that the bile rendered more acrid by the fever, is dissolved, putrified, and mixed with the blood; whence again

D d 4

the

<sup>a</sup> Operat. de Chirurg. 8. demonstrat. pag. 498.

<sup>r</sup> De Morbis, Lib. I. cap. 4. Charter. Tom. VII. pag.

535.

<sup>s</sup> Prorrhetic. Lib. I. Charter. Tom. VIII. pag. 756.

<sup>t</sup> Ibidem.

<sup>u</sup> N° 155. Ibidem, pag. 860.

the same disorders are to be expected. Hence Hippocrates <sup>w</sup> condemns white stools, more especially in phrenitic <sup>x</sup> patients; in whose works many more passages are to be found of the like nature <sup>y</sup>.

But when the passage of the bile into the intestines is impeded by an obstruction, either of the common or of the cystic duct, the stools then often look white, and the disease is indeed difficult; yet in this case it is not always a fatal sign, since the disease is curable upon the removal of the obstruction, as we shall declare hereafter, when we come to treat of the several kinds of jaundice and inflammation of the liver. But this sign affords a much worse presage, if the stools appear white without the signs of a jaundice.

The urine retained, pale, thin, and colourless.] Since naturally the urine is oftener discharged than the intestinal fæces, therefore a long retention of the urine is much more dangerous. But this retention is above all the most dangerous in acute diseases, because the saline and oily parts of the blood being rendered more acrid by the increased velocity of the circulation, ought to be that way evacuated; and if this evacuation does not succeed it is evident, that the worst consequences are to be feared. Hence Hippocrates <sup>z</sup> tells us, that a suppression of the urine in acute diseases is of the most fatal consequence; and in another place <sup>a</sup> he observes, that a suppression of urine among other symptoms, is attended with a pain in the head, and sometimes convulsions. But since the bile return-

<sup>w</sup> In Prognostic. Charter. Tom. VIII. pag. 629.

<sup>x</sup> Prorrheticor. Lib. I. text. 13. *ibid.* pag. 708.

<sup>y</sup> *Ibid.* pag. 736. & in Coacis Prænot. N<sup>o</sup> 602, 606, 615, *ibid.* pag. 888, 889.

<sup>z</sup> Prorrhetic. Lib. I. Charter. Tom. VIII. pag. 734.

<sup>a</sup> *Ibid.* pag. 736.



returning into the blood is usually washed out in a great measure by the urine, which therefore appears of a higher colour, as in a jaundice and other bilious diseases; therefore if in such a case the urine is suppressed, there will be the greatest danger, that the bile mixed with the blood, may every moment acquire a greater acrimony from the increased circulation. Hence the reason is evident why Hippocrates<sup>b</sup> says, *In biliosis urinæ interceptio brevi occidit.* 'That a suppression of the urine in bilious fevers, soon kills the patient.'

But when the urine is not intercepted, but discharged pale, thin, and colourless, the same disorders are to be expected, because in the like manner those parts are retained in the body, which ought to have been expelled by the urine. For it was proved before in the comment to §. 673, that a more intense colour of the urine followed, from a greater attrition of the fluid parts against each other, and against the sides of the vessels, and that from thence we may be able to discover the internal heat: but even in healthy people after violent exercise of body, the urine appears more intensely coloured. The reason is therefore evident, why in acute diseases, a pale and colourless urine is of such bad import. Hence it is by Hippocrates<sup>c</sup>, ranked among the signs of a phrenzy being at hand. See also what has been said of this kind of urine, in the comment to §. 712.

[The urine having a black cloud suspended in it.] Also this kind of urine is by Hippocrates esteemed a sign of a future phrenzy in the places before cited, and generally black clouds swimming in the urine

<sup>b</sup> Coac. Prænot. N° 592. *ibid.* pag. 887.

<sup>c</sup> Prorrhetic. Lib. I. text. 4. *ibid.* pag. 699. & Coac. Prænot. N° 582. *ibid.* pag. 886.

urine are condemned by him <sup>a</sup>. For it denotes a beginning putrefaction of the humours; as we said before upon another occasion, in the comment to §. 741, where more may be seen upon this subject.

[No thirst.] Namely, when the patient is not thirsty, although the causes of thirst in the body are at that time violent; this sign therefore denotes, that the common sensory is now disturbed, and is no longer affected by those things which before excited thirst. See what has been said before at §. 637, as also what has been said in the comment to §. 799, concerning inextinguishable thirst suddenly abolished in an ardent fever. For where the thirst is diminished, while at the same time the tongue appears more moist, and other good signs denote the disease to be diminished, this is one of the best signs.

Fierceness, redness of the face, watching, and the signs of an inflammation approaching in the head.] For all these denote the cause of a phrenzy to be now present in the head, or that it will soon follow; but of each of these signs we treated before in the former part of this section.

## S E C T. DCCLXXIII.

**W**HEN either of these phrenzies (§. 772.) is present, it is attended with the following symptoms; 1. a deprivation of the sensible ideas, and of the internal senses, with the reasoning and passions of the mind. 2. They become more fierce, ungovern-

<sup>a</sup> In Prognostic. Charter. Tom. VIII. pag. 634.



ungovernable, restless, and are often disturbed in their sleep. 3. The pulse appears hard, the respiration slow and large. 4. The face is generally very red, wild and terrible of aspect, the eyes being fierce and protuberant, and a little blood dripping from the nose.

Whether or no the brain being primarily affected occasions the phrenzy, or whether the same disorder is translated thither from some other part, at the time when the morbid cause affects the encephalon, in either case there are certain changes observable, especially in the functions which we know depend upon the brain; and from these appearances called symptoms, the diagnosis of this disease present is derived. But such are the following.

1. It is evident from what was said upon another occasion, in the comment to §. 700, where we treated of a febrile delirium, that ideas might be excited in us from an internal disposition of the brain, which ideas are not agreeable to external causes acting upon the organs of sense; and that the ideas thus formed, are different according to the more or less violent change of the common sensory, so as to be either slight or weak, and easily capable of being directed by the reason; or on the contrary, so powerfully to affect the delirious patient, that he firmly persuades himself such causes are existing without, as formerly produced the like ideas by acting upon the organs of sense; and then such ideas, arising from an internal disposition of the brain, are often accompanied with the judgment, passions of the mind, and even violent motions of the body; and from hence may be derived

derived and explained, the various degrees of a febrile delirium. But since it was proved at §. 701, that a morbid affection of the medullary part of the brain attends in a delirium, and that this may proceed from the influx, transflux, and efflux of the humours through the encephalon being impeded or obstructed from any cause, from a more violent motion of the humours, &c. it is sufficiently evident, that what has been there said likewise holds true, with respect to a phrenzy; in both kinds of which, whether true or symptomatic, the motion of the humours through the vessels of the encephalon, is so much disturbed from the inflammation of the meninges, and sometimes even from the cortical substance of the brain itself, urged with an acute continual fever. Every thing therefore which has been said concerning the depravity of the ideas, the judgment thence following, the injury of the imagination, &c. in a febrile delirium, does likewise belong to this place.

But since the slightest change in that corporeal organ, upon which our humanity depends, is sufficient to excite ideas without any external cause, either such as are altogether new ones, or like those which have been before excited by external causes acting upon the organs of sense; it is evident enough how much all these must be disturbed, when an inflammation is seated in the internal parts of the head. Hence this disorder has sometimes appeared so wonderful to ignorant people, that they believed it ought to be ascribed rather to diabolical power, than to natural causes. Thus Tournefort<sup>e</sup> observes, that in Greece as soon as the patient is delirious, they no longer

<sup>e</sup> Voyage de Levant, Lettre IV. pag. 66.



longer consult physicians for relief, but fatigue the patient day and night with exorcisms; but if the patient happens to perish of this disease, they prohibit the body from being buried with the usual ceremonies of the country, namely, because the patients were not sufficiently set at liberty in their mind from the devil. But although where the common sensory is disturbed in a phrenzy, there may be innumerable and very different changes raised in the thoughts, yet it most frequently happens, that the patients thoughts are most incessantly employed upon the arts or workmanship to which he has been most accustomed; or if any thing happened to him that has made a violent impression on the mind a little before the invasion of the disease, the remembrance of that thing is perpetually renewed. Continual observations in practice teach this; and the disorder afflicting the whole city of the Abderites, affords a remarkable proof of the same thing. For Lucian<sup>f</sup> relates, that Archelaus a celebrated tragedian, having acted the fable of Andromeda before the Abderites in very hot weather in the midst of the summer, many returned out of the theatre with a fever upon them, and that even afterwards the whole city was invaded with a continual fever, which immediately became violent, even on the first day. But about the seventh day the fever went off in some by a plentiful hæmorrhage from the nose, and in others by a copious sweat. But these patients had a ridiculous kind of disturbance in their minds, for every one was acting the tragedy, repeating the verses, and especially singing in a mournful tone, Andromeda of Euripides. But it is evident from the

<sup>f</sup> Tom. I. in Capitulo: *Quomodo historia sit conscribenda*, pag. 657.

the preceding causes and history of this disease, that the Abderites laboured under a true phrenzy, and that the remembrance of the tragedy, which they had heard with so much delight being renewed by the disease, continued the whole time of it, and went off with it. For Lucian remarks, that the fever went off on the seventh day, and that the whole city was full of seven-day tragedies.

2. That a perpetual delirium attends a phrenzy, was said before at §. 771 ; but it was there likewise observed, that this, though frequently, is yet not always a fierce or raving delirium : for fierceness is said to attend, when the delirious patient attempts to injure himself or others. But the ideas arising from the morbid change in the common sensory, are either attended with this fierceness, or not, according to the various affections of the mind. Thus the delirium of the Abderites, was rather a ridiculous than a fierce one ; and in the fatal phrenzy, when the patient often catches at the nap of the bed clothes, or at straws from the sides of the curtains or walls, they are tacitly delirious without any disturbance, as we said before in the history of a febrile delirium. But in the mean time, great caution is necessary to be used, even in these cases, as those tacit and still phrenzies suddenly change into extravagant ravings. Thus I remember a gardener in the third day of a true phrenzy, who was then only tacitly delirious and caught at the bed-clothes, but in one moment he jumped out of the bed, and ran swiftly up stairs to the highest part of the house, from whence he was going to throw himself out of the window, if his wife had not immediately laid hold of him ; but while she was struggling with



with him, and calling out to others for assistance, the patient was convulsed and died suddenly.

But since pervigilium or watching, has at first for its cause only a slight inflammation of the brain (see §. 708.) and that cause being increased, it often changes into a coma; the reason is therefore very evident, why restlessness and a disturbance in the sleep so frequently attend a phrenzy.

3. Under this number are enumerated the alterations appearing in the vital functions of this disease. But a hard pulse is observed commonly to attend almost in all inflammatory diseases joined with an acute continual fever. But it denotes that the blood is very dense and compact, and that the capillary extremities of the arteries, are obstructed with an inflammatory tenacity<sup>s</sup>. Hence Galen<sup>h</sup> observes, that the pulse of pleuritic patients is hard and nervous. And at the same time he likewise observes, that there is a great variety to be perceived in the pulse of phrenitic patients; for sometimes they are tremulous, and seem to be knotty and unequal. But this last seems to take place chiefly when the disease is already at its full height, and more especially if the cerebellum itself begins to be affected; for then we know that the vital functions must be disturbed.

For as the cerebellum is supplied with its humours from the same vessels with those of the brain, and is covered with the same membranes, it is hardly possible for a violent inflammation to be seated long within the head, without affecting the cerebellum likewise: hence Galen in the place last cited, observes that the pulse is very rarely large

<sup>s</sup> H. Boerh. Instit. Medic. §. 962.

<sup>h</sup> In libello de Pulsibus ad Tyrones, cap. 12. Charter. Tom. VIII. pag. 11.

large in phrenitic patients, but most frequently small. But also from the same cause there seems to be a change observable in the respiration of phrenitic patients; for they continue a long time before they draw in the air, which is then powerfully inspired and expired; after which there is a long interval again of rest, before they make or repeat the next inspiration. This is that kind of respiration, which Hippocrates<sup>i</sup> terms great, and made with a long interval of time, which he observes to portend a delirium; which kind of respiration he also observes to have attended in Philiscus<sup>k</sup>, who was delirious with an acute continual fever, and perished on the sixth day; as also in the wife of Dealces who died phrenitic<sup>l</sup>.

4. For all these signs denote that the blood tends with a greater quantity and impetus towards the head. Moreover, when an inflammation is seated in the interior parts of the head, the free course of the blood through the vessels is impeded, and therefore the blood drove thro' the carotids will be sent more copiously through their external than internal branches, whence the blood-vessels of the face being distended, will make it appear more turgid and red; and this the more in proportion, as the circulation of the humours thro' the vessels of the encephalon becomes more difficult. This appears most evidently in apoplectic patients, who have their face red and turgid even until death, and this too in cases where the disease has its origin from a sluggish and cold cause. Hence the reason is evident why Hippocrates<sup>m</sup> condemns that

<sup>i</sup> In Prognosticis text. 24. Charter. Tom. VIII. pag. 607.

<sup>k</sup> Epidem. 1. ægrot. 1. Charter. Tom. IX. pag. 99.

<sup>l</sup> Epidem. 3. ægrot. 15. Charter. Tom. IX. pag. 309.

<sup>m</sup> Protrhetic. Lib. I. Charter. Tom. VIII. pag. 732.



that comely colour of the face, and the fierce countenance in patients, more especially in acute diseases <sup>n</sup>. A person taken with a violent fit of anger has the same sort of countenance, (see the comment to §. 104.) and the patients thus affected are often soon after taken with the most fierce ravings. But the slight dripping of blood from the nose likewise denotes, that the quantity and impetus of the blood so much strains the vessels, that they begin to break and let out their contained blood; but this without a due effect, generally because the imperviousness of the blood stops up the vessels by instantly concreting. But a present phrenzy is best removed by plentiful bleeding, by which also a future phrenzy may be frequently prevented in acute diseases; as we shall say hereafter at §. 779. See also what has been said of this subject in the comment to §. 741.

## S E C T. DCCLXXIV.

**T**HE prognosis of a phrenzy is in a manner determined as follows:

A true phrenzy kills on the third, fourth, and seventh day; but seldom exceeds the last.

That this disorder is extremely dangerous, no one doubts; but it is often fatal even on a sudden, unless it is instantly relieved by the most efficacious remedies. But diseases tend to death sooner or later, according to their different degree of violence, and nature of the part affected. But since a true phrenzy, which supposes the brain to be primarily affected with an acute continual fever (see §. 771.)

<sup>n</sup> Coac. Prænot. N<sup>o</sup> 214. *ibid.* p. 864.

is seated in a part of the body extremely tender, and very easily liable to be destroyed, it is sufficiently evident why it seldom holds out longer than the seventh day. But in a symptomatic phrenzy the disease is often protracted to a greater length, because the disorder lies always in some other part of the body before it is transferred to the brain. The observations of Hippocrates confirm this prognosis. Philiscus <sup>o</sup>, who was taken with a delirium on the third day of an acute fever, had afterwards a slight dripping of blood from the nose, with a large and rare respiration, (which is observed to be one sign of a phrenzy) and on the sixth day of the disease he expired. Philistes <sup>p</sup>, who had been a long time afflicted with the head-ach, being taken with a continual fever from drinking, after an increase of the pain in his head, on the second day about noon he became violently delirious or phrenitic; and being convulsed on the fourth day, he expired on the fifth in the morning. Thus also another phrenitic woman <sup>q</sup>, he observes, perished on the seventh day; and another patient <sup>r</sup> who became phrenitic on the first day of the disease, he observes, expired on the fourth. But Galen <sup>s</sup> in his commentaries to this text confirms the prognosis before given, namely, that all phrenitic patients die within seven days from the first of the disease, and that very few outlast that time. But he seems greatly to wonder, that people who have hitherto enjoyed a good state of health, should be so suddenly invaded, and carried off by this disease: but he was of opinion, that in this case,

<sup>o</sup> Epidemic. 1. ægrot. 1. Charter. Tom. IX. pag. 99.

<sup>p</sup> Epidemic. 3. ægrot. 4. ibid. pag. 232.

<sup>q</sup> Ibidem ægrot. 11. pag. 250.

<sup>r</sup> Ibidem ægrot. 4. post tempestatem, pag. 298.

<sup>s</sup> Ibidem.



case, *Vitiosus in corpore humor coacervatus fuerit, veneno lethali assimilis, in corporibus vicinis paulatim aliquid agens; quæ quando vitio jam aliquo modo opportuna erant, humorque ipse evaserat malignissimus, lethale subito apparuit symptoma:* ‘A vicious humour was collected in the body very much like a fatal poison, which by degrees acted upon the adjacent parts; and that when this had a seasonable time of acting, and the humour itself was become extremely malignant, this fatal symptom then suddenly appeared.’ But as we are at present acquainted with the very tender vascular fabric of the encephalon, the reason readily appears why this disorder so suddenly becomes fatal, even though no malignant nor deleterious humour is lodged in the body.

But in a symptomatic phrenzy sometimes the disease is protracted to a great length. For thus Apollonius <sup>t</sup> lying ill of a fever, with a tumour of the right hypochondrium, becoming afterwards phrenitic, he expired on the thirty-fourth day. Thus also a woman who had a difficult delivery of two twins, being not well purged, she died phrenitic on the seventeenth day <sup>u</sup>. And the youth who lay ill of a fever from drinking and excessive venery, expired phrenitic on the twenty-fourth day <sup>w</sup>. But from the descriptions of the diseases of these patients, it appears that other parts of the body were first affected, and that the disorder was transferred from thence to the brain; or at least that by the fever preceding for several days before, the most fluid parts of the blood were dissipated, and the rest so much thickened (see §. 587.)

E e 2

that

<sup>t</sup> Ibid. ægrot. 13. pag 307.

<sup>u</sup> Ibid. ægrot. 14. pag 308.

<sup>w</sup> Ibid. ægrot. 16. p. 310.

that it became impervious, so as to stagnate in the smallest vessels of the encephalon.

But that even a symptomatic phrenzy is sometimes suddenly fatal, we are taught from the history of Calvus <sup>x</sup> of Larissa, who being suddenly taken with a pain in his right thigh, joined with an acute ardent fever, on the third day the pain of his thigh ceased, but then he became delirious or phrenitic, was very restless, and suddenly expired on the fourth day about noon.

And then if the phrenzy is severe, it often turns into madness.

A continual delirium without a fever is by every one called madness, as Galen <sup>y</sup> assures us; and he observes that a phrenzy is distinguished from madness only by the fever which attends it <sup>z</sup>. If therefore the fever ceases in phrenitic patients, they may be said to be mad. It was said before upon another occasion in the comment to §. 593, that fevers terminate in other diseases, when the febrile matter is deposited in some part of the body; and that these diseases produced may be very different, according to the variety of the part which the matter occupies. It is likewise there remarked, that sometimes in most healthy people a fever arises; and that soon after the matter being deposited upon some part, it excites a phlegmon or erysipelas, the fever immediately ceasing when this deposition is made. This is very frequently observed in quinries, when after a slight fever has continued a day

<sup>x</sup> Ibid. ægrot. 5. pag. 298.

<sup>y</sup> Commentar. in 1 Lib. Prorrhetic. Charter. Tom. VIII. pag. 693.

<sup>z</sup> Commentar. 3. in Lib. III. Epidemic. Charter. Tom. IX. pag. 276.



day or two, the fauces swell, become painful and inflamed, the fever then ceasing entirely. But, as we observed in the section last cited, the whole success of the cure in such diseases depends chiefly upon the part affected. If therefore such an inflammation arises in the meninges of the brain, the fever ceasing when the deposition is made upon these parts, such patients may be delirious in the worst degree; but having no fever, they will be therefore maniacal or mad. I well remember myself to have seen cases of this nature, where in a fever not very violent the patient has begun to be slightly deceived, and soon after the fever entirely ceasing, they have continued raving in the highest degree for several days, and even weeks, so that they have been obliged to be restrained from injuring themselves or others by ligatures. But what has been remarked by the accurate observer in diseases, Sydenham, fairly confirms what is here advanced. For in describing a new kind of fever, among other things he observes<sup>a</sup>, that blood taken from a vein in these patients, resembled that which is drawn in a pleurisy; and that sometimes the neck and fauces were painful, but much less than in a quinsy; but that sometimes there succeeded cutaneous eruptions, not much differing from the measles, unless in their appearing more red, and in their going away without a desquamation of the cuticle. But he particularly observes, that this disease was greatly inclined to a pleurisy, and to affect the head: *Ubi jam caput occupavit febris, & phrenesis semel invaluit, nulla restare febris indicia, nisi quod pulsus nunc citatior est, nunc tardior*: ‘ Al-  
‘ so that when the fever had once invaded the  
E e 3 ‘ head,

<sup>a</sup> In Schedula monitoria de novæ febris ingressu, p. 651, 652.

‘ head, and the phrenzy become violent, there  
‘ were no signs of the fever remaining, unless that  
‘ the pulse was sometimes quicker, and sometimes  
‘ slower than usual.’ But the same thing likewise  
happened when a coma supervened upon this fever; for then, besides the whiteness of the tongue, there was no sign of any fever, but the patient seemed perfectly to enjoy an intermission<sup>b</sup>. It is therefore evident from all that has been said, that a phrenzy sometimes turns into madness; but yet that in diseases of the like kind, when the violence of the fever ceases, and only a slight inflammation or gentle erysipelas invades the interior parts of the head, the patient most frequently escapes, and afterwards perfectly recovers; provided that after general evacuations have been made by bleeding and purging, the whole affair is committed to time and nature, as Sydenham<sup>c</sup> well observes. The slight cutaneous inflammation observed in the same fever, is probably like that which invaded the head in the same disease, as it went away spontaneously without any desquamation.

But sometimes a severe phrenzy is followed with a much worse madness, which often continues incurable as long as the patient lives. From what has been said it is evident, and will be further demonstrated hereafter at §. 776, that the proximate cause of a phrenzy is an inflammation of the meninges of the brain, and that even sometimes the cortical substance itself of this viscus has been found with manifest signs of inflammation upon it: but from the infraction of the vessels, and distension of them with impervious blood, the adjacent smaller vessels are compressed, while the humours are urged more swiftly through those which yet remain pervious; whence the equable and

<sup>b</sup> Ibid. pag. 669.

<sup>c</sup> Ibidem.



and gentle motion of the humours through the vessels of the encephalon is disturbed, though upon that depends the exercise of the external and internal senses with the voluntary motions. But when a violent fever continues to urge the humours into these obstructed parts, the very tender fabric of this viscus is soon destroyed, and such patients die in a few days, as we have seen a little before. But if by art or spontaneously the fever is diminished, or entirely ceases, yet frequently this inflamed part does not therefore immediately return to its healthy state, unless those impervious humours are gradually dissolved, which were impacted into the weak and tender vessels of the encephalon. But the very tender vessels of the encephalon having once received the grosser humours by an error of place (see §. 118.) can very difficultly resolve such an obstruction, as the arteries of the brain are destitute of strong elastic coats; for want of which they cannot repel back the obstructing particles into the larger trunks, even though the impulse of the humour urging behind is little or nothing. There is therefore danger lest this impervious fluid, by the dissipation of its most subtile parts, should concrete together with the containing vessels, and by that means destroy or deprave the functions which depend upon the motion of a fluid through these vessels during the remaining part of life. Add to this likewise, that from the distension of the obstructed vessels the adjacent smaller ones are compressed, and their contained fluid being forced out, their sides come into contact, and concrete together, whence again these maladies are increased. Physicians of considerable practice too frequently lament from these causes an incurable loss of the sight and hearing, after acute inflammatory diseases of the head; and even the

worst consequences of the like nature are too frequently observed, when inflammatory diseases of the other viscera have been unhappily treated, or imperfectly cured. Whether or no an incurable asthma may not in this manner continue during the rest of life, after a severe inflammation of the lungs? After a violent and stubborn inflammation of the liver may thus follow a jaundice, often returning at times as long as the patient lives, &c. The reason is therefore evident, why after a severe phrenzy madness often follows incurable to all remedies; or sometimes the extravagant raving going off, the disease turns into the most incurable foolishness. There are many such unhappy instances which occur in our public mad-houses; and I have, above all, most frequently observed, that a phrenzy from a retention of the lochia in lying-in women, has degenerated into a perpetual madness and foolishness.

If this phrenitic madness increases a little, it becomes exorbitant or ungovernable.

It is an admonition of Hippocrates of the greatest moment, that the physician being aware of this disorder should immediately have recourse to the most efficacious remedies, and at the same time to be careful lest such patients should injure themselves or others: for thus he expresses himself; *Quæ sensim feroces fiunt desipientiæ, ferinæ sunt: sed & convulsiones prænunciant:* ‘They who by degrees become fierce from a deception of the mind are phrenitic or raving, and portend convulsions<sup>d</sup>.’ For Foësius seems to have very well

<sup>d</sup> Coac. Prænot. N<sup>o</sup> 87. Charter. Tom. VIII. pag. 857. & N<sup>o</sup> 156. ibid. pag. 860. & N<sup>o</sup> 247. pag. 865.



well translated ἐπ' ὀλίγον *sensim*, or by degrees; whereas others translate it in a little time; more especially because Galen seems to favour this opinion in his comment upon a like text in another place of Hippocrates <sup>c</sup>, where he says, *Talis igitur vis hujus sermonis erit; quum videris quempiam cum ferocitate desipientem, & si paulo post sedetur, cognosce, mentem ejus non febris ratione læsam esse, sed quia phrenitica subalitur affectio, quæ postea adauēta tibi ferina videbitur*: 'This will be therefore the sense of the present sentence; when you shall see any one deceived in mind with a fierceness, and if it soon after goes off, you may know that the patient's mind was not injured in proportion to the fever, but because there was a phrenitic disorder succeeded, which afterwards increasing will seem to you like a raving.' But if we consider the appearances observable in such diseases, the translation of Foësius will appear much more probable: for frequently the delirium is increased slowly and by degrees, till it ends in the highest raving. For first the patients appear more than usually cross, afterwards they give fierce and threatening answers, then they reject what is brought to them, though they strongly desired it before: and thus by degrees, as the disorder advances, they at last fall upon those who are present, endeavouring to injure them by kicking, biting, or the like; for such deceptions of the mind Galen <sup>f</sup> would have called ravings. For there is no room to doubt but the patient is ravingly delirious, though he is soon after quiet; but then there is just reason for those who are ignorant of the matter to be careful both of themselves and of the

<sup>c</sup> Prorrhēt. Lib. 1. text. 25. Charter. Tom. VIII. p. 715, 716.

<sup>f</sup> Ibidem.

the patient, as there is reason to fear lest the patient should soon after fall into the like raving. But Hippocrates seems to have cautioned physicians not to believe the cause of the disease to be slight, when the delirium slowly ascends into a raving; for the patient may not immediately and at once be put into a rage, when in the mean time a severe raving is to be shortly feared. Even the text itself of Hippocrates seems evidently enough to favour this sense; for these are his words: αἱ ἐπ' ὀλίγον θρασεῖναι παραχρῆσιες θηριώδεις εἰσιν, ἔ μόνον ἔαν ἐπ' ὀλίγον χρόνον γίνωσται. For if we take ἐπ' ὀλίγον to mean a short time, this text will have no distinct meaning, since in the end of it we read ἐπ' ὀλίγον χρόνον: but the sense of this text appears evidently enough, if we retain the following version of it: *Quæ sensim fiunt feroces desipientiæ, ferinæ sunt, non tantum si pauco tempore fiant (feroces scilicet.)* 'Those phrenzies which gradually or slowly become raving, render the patient wild or ungovernable, as well as those which become so in a short time.'

But most of the signs whereby we may foreknow a future delirium, or whereby we may distinguish an increase of that which is present, may be found collected together from Hippocrates in the comment to §. 702.

It often ends in a lethargy, coma, or catalepsy.

Namely, when the inflammatory tumour of the vessels being increased, the very tender fibres of the encephalon are compressed, and all the influx of the spirits intercepted into the nerves serving to the senses and voluntary motions; or at least it is for the most part obstructed, if not wholly intercepted. Even that an apoplexy itself may be thus produced.



duced, we shall hereafter demonstrate in the history of that disease, at §. 1010, N<sup>o</sup> 2. But a lethargy (λήθη α'εργε) as if one was to say an idle forgetfulness, takes away almost entirely all sense and motion, and is joined with an insuperable necessity of sleeping; and for the most part the disease, which physicians usually describe under this name, is derived, as to its cause, from a moist phlegmatic disposition of the brain, and a cold cacochymy of the blood; whence Hippocrates <sup>g</sup> describes this disease as follows: *Lethargici, manibus tremuli, somnolenti, decolores, tumidi, pulsibus tardi sunt, & partes sub oculis elevatas habent, &c.* 'Lethargic patients are sleepy, have a trembling of the hands, are without their healthy colour, appear tumid or swelled, the pulses are slow, and the parts under the eyes appear elevated or distended, &c.' It is therefore evident, that a lethargy is quite of a different nature from an inflammatory phrenzy; but yet if the like sleepiness follows a phrenzy, especially with a considerable diminution of the violence of the fever, without the signs of its going off, it is usual to call this symptom by the name of a lethargy. Galen <sup>h</sup> describes such a disorder in treating of the difference of pulses in diseases, which he says wants a proper name, and concerning which he doubts whether it ought to be called from coming betwixt a phrenzy and a lethargy, or from being made up both of a phrenzy and lethargy together. *In quo affectu ægri connivent ut plurimum oculis, somnolenti sunt, atque stertunt. Rursus oculis fixis ac inconniventibus diutissime, ut catocke laborantes, intuentur. Et si quid roges, atque ad colloquium compellas, difficiles sunt* ad

<sup>g</sup> Coac. Prænot. N<sup>o</sup> 140. Charter. Tom. VIII. p. 859.

<sup>h</sup> De Pulsibus ad Tyrones, cap. 12. Charter. Tom. VIII.

*ad respondendum & tardi. Plerumque etiam stultè loquuntur, nec rectè respondent, ac temere nugantur.*

‘ In which disorder the patients have generally  
 ‘ their eyes shut, are sleepy, and snore. Others  
 ‘ again have their eyes fixed, and for a long time  
 ‘ without motion, as if they were invaded with a  
 ‘ catalepsy. But if you ask them any thing, and  
 ‘ oblige them to talk, it is with great difficulty,  
 ‘ and they are a long time in giving an answer.  
 ‘ And generally they speak foolishly, not giving  
 ‘ proper answers, but trifling in a disagreeable  
 ‘ manner.’ It is sufficiently apparent that these  
 circumstances agree very well with what has been  
 said before; more especially as Galen subjoins,  
 that in these patients *Pulsus celeres sunt & crebri,*  
*perinde ut phreniticorum, minus tamen: & roboris*  
*item minus ac illi obtinent:* ‘ the pulses are quick  
 ‘ and frequent, as in those who are phrenitic, only  
 ‘ smaller; and likewise they are less strong.’

But that a coma frequently attends or follows inflammatory diseases of the head, is evident from what has been said at §. 704. But that wonderful disorder called a catoche, or catalepsy, in which the patients suddenly are taken without motion and sense, keeping in the same posture of body as they were in when the disease first invaded (see §. 1036.) that this should likewise follow after a phrenzy, will not appear wonderful to any, who considers that the dissection of bodies dying of this disease has demonstrated the arteries and veins to be very turgid with thick blood violently impacted into the vessels (see §. 1041.) In the text lately cited from Galen, there is mention made of a catalepsy; and, that a delirium is sometimes joined with a catalepsy, we read in Hippocrates<sup>1</sup>: *Capite dolentes,*

<sup>1</sup> Porrrheticor. Lib. I. Charter. Tom. VIII. p. 756.



*dolentes, cum catoche delirantes, intercepta alvo, oculo ferocientes, facie florida, opisthotono corripuntur:* ‘ That those who having a pain in the head ‘ are delirious with a catoche, a suppression of ‘ the stools, a fierceness of the eyes, and a florid ‘ colour of the face, such are invaded with an ‘ opisthotonos, or convulsions backward.’

But that these disorders are of the worst presage in a phrenzy, even those are well acquainted who attend the sick, being able to foresee certain death, when the patient before raving suddenly becomes quiet and sleepy.

A vomiting of eruginous or green matter on account of the inflammation of the brain, frequent and indecent spitting upon the bystanders, a trembling, white stools, or a suppression of the urine and intestinal fæces, a crude urine, convulsions, catching at things that seem to fly before their eyes, a driness or dustiness of the eyes, a gnashing of the teeth, an insensibility of thirst, which is the common forerunner of convulsions, a perpetual changing of the symptoms, the subsiding of any ulcer or wound before swelled, are all of them most frequent presages of the greatest danger, and of death.

In this paragraph are enumerated those signs which point out the greatest danger, or death, in a phrenzy. But among these is justly ranked the eruginous vomiting. In the comment to §. 267, where we treated of the signs whereby it might be known, whether wounds of the head injure or compress the brain itself, it was said to be a very suspicious

suspicious sign, if the patient thus affected had a bilious vomiting; and in the same place it was remarked, that the brain being disturbed by an unusual motion in sailing upon the sea in people who were before perfectly in health, there followed a vomiting of eruginous bile; and, on the other hand, that when from any cause such a collection of bilious humours is lodged about the præcordia, all the functions of the brain are wonderfully disturbed. But concerning this wonderful consent betwixt the brain and præcordia, see what has been said before in the comment to §. 701. When therefore this vomiting attends in phrenitic patients, we know that the inflammatory cause perfectly disturbs the brain itself, and that therefore the worst consequences of every kind may be expected. But we can easily distinguish, that this vomiting proceeds from an inflammation of the brain, and not from acrid bilious humours fluctuating in the first passages, because of the absence of those signs which were enumerated in the first number of §. 642, where we treated of a nausea arising from such bilious humours. Hence the reason is also evident, why Hippocrates (see the comment to §. 267.) says, *In capitis doloribus æruginosi vomitus cum surditate & pervigilio, cito vehementer insanire faciunt*: ‘ That eruginous vomitings and pains of the head, with deafness and perpetual watchings, soon make the patient violently delirious.’ But the histories of the patients given us by Hippocrates in his books of epidemics, sufficiently prove the fatal events of these kinds of vomitings. For thus Philistes<sup>k</sup> vomited much eruginous matter on the first day of the disease. On the second day he was violently phrenitic,

<sup>k</sup> Epidem. 3. ægrot. 4. Charter. Tom. IX. pag. 232.



nitic, on the fourth day he was convulsed, and on the fifth he expired. But another phrenitic patient<sup>1</sup>, who vomited much eruginous thin matter on the first day of the disease, and was greatly delirious, had on the second day palpitations or tremblings throughout the whole body, attended with convulsions the following night, and on the fourth day he expired.

Frequent and indecent spitting upon the bystanders.] Whether frequent spitting in itself is a sign of a phrenzy in diseases, may indeed seem to be a matter of doubt. But since the free circulation of the humours through the internal parts of the head being impeded, occasions the blood to be urged with a greater force upon those parts which are supplied with branches from the external carotids; whence that redness and fierceness of the face, with protuberant eyes, &c. of which we treated in the fourth number of the preceding aphorism; therefore it does not seem so disagreeable to reason, that from the same cause the salival glands should sometimes separate a greater quantity, which the patient is continually spitting out. Hence perhaps it is that Hippocrates<sup>m</sup> says, *Screatus frequens, si sane & aliud quoddam signum adfuerit, phreniticum*: 'Frequent spitting of healthy saliva, when attended with other signs, denotes a phrenzy.' And a little after he condemns spitting in phrenitic patients<sup>n</sup>. But when the patients spit upon the bystanders, it is a sign of great raving, and is a most sure mark of a delirium in people of a good behaviour; for if even a fierce answer from a person of a mild disposition is of bad import in diseases, much

<sup>1</sup> Ibid. ægrot. 4. post tempestatem, p. 298.

<sup>m</sup> Prorrhēt. Lib. I. text. 6. Charter. Tom. VIII. p. 704.

<sup>n</sup> Ibid. text. 12. p. 708.

much more is such an indecent spitting. For it is justly laid down by Jacotius ° as a rule to the physician, where he comments upon the text before cited : *Omnes actiones voluntarias, quæ præter modum ac decorum vel deficiunt, vel exsuperant, phrenitidis esse signa* : ‘ That all the voluntary actions which are either deficient or redundant, beyond what is usual and decent, are signs of a phrenzy.’

Trembling.] When we treated of a febrile trembling at §. 627, it appeared that an imperiousness of the arterial fluid to be moved through the vessels of the encephalon, ought to be reckoned among the causes of trembling. When therefore such a trembling is observed in a phrenzy, we know that the free influx of the spirits into the nerves destined to move the muscles is disturbed ; so that one moment that influx is destroyed, and the next it is restored without the influence of the will ; and therefore it is evident, that the effect of the disease penetrates almost to the medulla of the brain itself. Hence the reason is evident, why a trembling is condemned by physicians as a fatal sign in a phrenzy. Hippocrates P says, *Phreniticæ vehementer affectiones tremulæ desinunt* : ‘ Violent fits of trembling are destructive in phrenitic patients.’ For that he does not here understand that a violent phrenzy ceases when tremblings arise, is sufficiently evident from another place Q, where he condemns tremblings as fatal in a violent phrenzy. Hence likewise, as we observed in the comment to §. 700, tremblings with obscure deceptions of the mind were by Hippocrates esteemed as signs of the patients being violently phrenitic ; and

° Jacot. & Holler. Comment. in Coac. Hippocr. p. 519.

P Prorrh. Lib. I. text. 9. Charter. Tom. VIII. p. 706.

Q Coac. Prænot. N° 99. ibid. p. 857.



and in a fatal phrenzy, concerning which we treated, when we spoke of eruginous vomitings; those palpitations or tremblings attended throughout the whole body in the second day.

White stools, or a suppression of the urine and intestinal fæces, a crude urine, catching at things that seem to fly before the eyes.] Concerning all these, see what has been said in the commentaries to §. 734 and 772.

Convulsions.] It was proved in the comment to §. 712, that convulsions are almost constantly fatal, when they follow after the signs of an inflammation in the brain have preceded, because then we know that even the medulla of the brain itself is affected. In those patients lately mentioned from the epidemics of Hippocrates, convulsions attended, and they likewise died phrenitic.

A driness or dustiness of the eyes.] We know that the eyes are cleansed and kept moist by a thin dew exhaling from the smallest arterial ducts; while at the same time, by the frequent motion or winking of the eye-lids, all the particles of dust which may have been gathered from the air about the eye, are prevented from adhering; but as soon as this exhaling dew or moisture is wanting, the eyes appear dry and rough. But anatomical injections teach us, that a great number of small arteries are dispersed through the eyes from the branches of the internal carotids belonging to the encephalon; and therefore we then justly conclude, that the like driness obtains in the internal parts of the head, the larger vessels being distended with impervious blood, and the smaller ones compressed and deprived of their most thin juices. Add to this, that such patients lie stupid, with their eyes fixed and wide open, the eye-lids winking hardly at all, or very rarely; whence the reason is

evident, why the eyes then appear dry and dusty, but always of the worst import. See what has been said concerning the sorrowful looking eyes of patients lying ill of putrid continual fevers, in the comment to §. 734.

A gnashing of the teeth.] It is a common thing for some people to clasp or grind their teeth together in their sleep. Otherwise it denotes an involuntary and convulsive motion of the muscles moving the jaws, and is therefore justly esteemed a bad sign in diseases. Hence Hippocrates \* carefully observes, *Dentium stridorem portendere insaniam & mortem, nisi quis a puero consueverit. Si vero etiam delirans hoc agat, jam valde perniciosum est*: ‘ That a gnashing of the teeth portends madness and death, unless it has been customary to the patient from a child. But if this happens to a delirious patient, it is then very pernicious.’

An insensibility of thirst, which is commonly the forerunner of convulsions.] For if the patient is not thirsty, though at the same time the causes of thirst are violent in this disease, we know that the common sensory is wholly disturbed, and that therefore the worst consequences of all kinds are to be feared. See what has been said concerning insensibility of thirst in the comment to the second paragraph of §. 772.

A perpetual changing of the symptoms.] We know that the brain is that corporeal organ, upon which the exercise of the voluntary motions, and actions of the external and internal senses depend: and since by an alteration in each of the nerves by external objects, distinct changes of thought are produced; and, on the other hand, in each of the muscles an arbitrary motion may be excited

\* In Prognostic. Charter. Tom. VIII. pag. 604.



excited by the influence of the will; it is evident, that all and each of the nerves have a distinct origin of the brain. An inflammation therefore being seated in the interior parts of the head, and by that means the motion of the humours being disturbed through the vessels of this or that part of the brain, very different symptoms may be excited, according as various origins of the nerves are thus affected. Thus wonderful phantasms or appearances seem to be offered to the eyes of delirious patients, a great variety of sounds is perceived by the ears, as also of smells, tastes, &c. Wonderful changes are observed likewise, when the origin of the nerves are changed from the internal morbid disposition of the common sensory. When therefore there is a perpetual change of these symptoms, we know that the common sensory is more and more disturbed, and that the disorder is propagated to other parts of the brain. Hence the reason is evident why Hippocrates says <sup>r</sup>, *In phreniticis per initia moderatum esse, sed crebro permutari, malum id est*: ‘ That phrenitic patients are at the beginning but moderately disordered; but if the symptoms frequently change, it is a bad sign:’ and soon after he adds <sup>s</sup>, *Crebræ in phreniticis permutationes convulsivæ*: ‘ That frequent changes in phrenitic patients denote convulsions.’ And therefore Galen <sup>t</sup> in his commentaries to this text says, *Vere igitur in cerebro ipso transfluxio est, alias in alia quapiam ipsius parte orta, speciem quidem affectionis servans, sed pro parte affecta symptomata ipsa permutans*: ‘ There is therefore a true transfluxion upon the brain itself in this disease, re-

F f 2

‘ taining

<sup>r</sup> Prorrhetic. Lib. I. text. 12. Charter. Tom. VIII. p. 708.  
Coac. Prænot N° 94. Ibid. pag. 857.

<sup>s</sup> Ibidem, text. 27. p. 716. Coac. Prænot. N° 102.

<sup>t</sup> Ibidem, pag. 716.

‘ taining the same nature, and affecting in the same  
 ‘ manner, as if it arose in any other part of the  
 ‘ body, but varying the symptoms themselves ac-  
 ‘ cording to the nature of the part affected.’ But  
 Galen assures us, he has often seen a number of  
 such phrenitic patients, who were indeed always  
 delirious, but in a different manner, according to  
 every kind of the animal functions. For at one  
 time they raged with anger, soon after they were  
 joyful; at one time they audaciously attacked the  
 by-standers, and at another time were frightened at  
 them, &c. But it is evident enough from what  
 has been said, why this disturbance of the symp-  
 toms is to be esteemed of bad import.

The subsiding of an ulcer or wound before  
 swelled.] This is not only one of the worst signs  
 in a phrenzy, but likewise in other diseases, as it  
 denotes a deficiency of life. (See the comments  
 to §. 158. N° 7. §. 403. N° 1. and §. 432.)  
 Hence Hippocrates in his prognostics enumerating  
 those things which the physician ought to attend,  
 in order to foresee what is about to happen in dis-  
 eases, he advises him to consider whether the pa-  
 tient has happened to have a wound or ulcer either  
 before, or in the disease. For if that ulcer be-  
 came dry, with a livid or pale colour, he presaged  
 the patient to be about to die.

The phrenzy which follows from a peripneumo-  
 ny is fatal.] That which comes from the small-  
 pox is very bad; and that proceeding from the  
 iliac passion is mortal.

The phrenzy which follows from a peripneu-  
 mony is fatal.] For then a phrenzy usually arises,  
 because the blood cannot pass through the inflamed  
 lungs from the right ventricle of the heart, and  
 therefore the venal blood cannot freely empty itself  
 into the right auricle and ventricle; and therefore  
 the



the blood will be obstructed in returning from the head by the jugular veins, while in the mean time the arteries continue to urge forward their blood to the head: thus the vessels of the brain will be over filled or distended, and its functions disturbed; and unless this inflammation of the lungs can be soon resolved, the patient perishes in a short time. But when a phrenzy usually follows only in the worst kind of peripneumony, the reason is evident why it is then so fatal. Hence Hippocrates says <sup>u</sup>, *A peripneumonia phrenitis, malum*: ‘That a phrenzy from a peripneumony is bad.’ And in another place <sup>w</sup>, for the patient to lift up his hand before his face, or to be catching at imaginary flies, gathering of straws, or pulling at the bed-cloaths, (all which we have already seen are the signs of an approaching phrenzy) he condemns as bad and fatal signs in a peripneumony. But in another place <sup>x</sup> he seems to make a milder prognosis, where he says, *Quicumque vero peripneumonici non purgati sunt iudicatoriis diebus, sed mente moti quatuordecim dies effugerunt, periculum est, illos suppuratos fieri*. ‘But whatever peripneumonic patients have no purgation or discharge upon the critical days, and if they continue phrenitic after the fourteenth day, there is danger that they will be overcome by the disease.’ But here it is to be observed, that he uses the word *παρὰποψάλλες*, which he often intends to signify a slight kind of delirium.

That from the small-pox is very bad.] When the fever which attends the first or contagious state of the small-pox before the eruption, causes a vio-

F f 3

lent

<sup>u</sup> Aphor. Sect. VII. Charter Tom. IX. pag. 297.

<sup>w</sup> In Prognostic. Charter. Tom. VIII. pag. 606.

<sup>x</sup> Coac. Prænot. N<sup>o</sup> 396. *ibid.* p. 875.

lent delirium or phrenzy, it is indeed always dangerous; yet there is great reason to hope, that when the small-pox breaks out, that will cease together with the other symptoms. But when a fierce or violent delirium continues after the eruption of the small-pox, or arises, if it did not attend, in the stage of infection, the danger is greater, as there may be then reason to suspect the variolous pustules attack the interior parts of the head. But when in the confluent small-pox a most severe putrid fever is kindled by a return of the almost gangrenous matter into the blood, and occasion a phrenzy; it is very evident, that the extremely tender vessels of the brain must be soon destroyed by the putrid and acrid humours drove through them with a rapid motion, so as to leave no hopes remaining. But concerning all these particulars, we shall treat hereafter in the history of the small-pox.

[That proceeding from the iliac passion is mortal.] It will be made evident hereafter, when we come to treat of an inflammation of the bowels, that in this disease, watchings, fevers, and even convulsions, are excited by the most intense pain. But the disease is never carried to so great a height, but a fatal gangrene may soon after follow, whereupon all the pain suddenly ceases, and the patient is generally delirious. Hence Hippocrates says *γ*, *Ab ileo vomitus, vel singultus, vel convulsio, vel desipientia, malum*: ‘That a vomiting, hiccup, convulsion, or phrenzy following after the iliac passion is bad.’

An inflammation fixed for a time, and producing a roughness of the fauces, spreading upward,



upward, creates a mortal phrenzy, in which the patient is very industrious and busy with his hands and fingers.

The celebrated Boerhaave has frequently observed such cases, in which, after a slight quinsy disappearing without good signs, a fatal phrenzy has arose, when by a bad translation the inflammation of the fauces has seized the head, from whence he makes this prognosis; though there are not obscure signs of the same to be found in the works of Hippocrates <sup>z</sup>, who has the following passages, (as we said before in the comment to §. 772.) *In acutis circa fauces dolentia, contracta, parva, suffocantia. Quum biaverit, non facile os cogere & concludere posse, delirium portendit. Ex his phrenitici, & perniciose laborant:* ‘ In acute diseases, when the parts  
‘ about the fauces are painful, contracted, small,  
‘ and suffocating; or if the patient has yawned,  
‘ and is not easily able to close or shut his mouth,  
‘ it presages a delirium. From the same symptoms  
‘ likewise phrenitic patients are dangerously dis-  
‘ ordered.’ And in his Coan prognostics <sup>a</sup> we read, *Fauces modice exasperatæ, & alvus vanis conatibus nitens, frontis dolores, ægri palpantes, cum dolore. Quæ ex his augescunt, difficilia:* ‘ That a  
‘ moderate roughness of the fauces, with fruitless  
‘ endeavours to go to stool, pains in the forehead,  
‘ the patients feeling with their hands or fingers  
‘ with pain. Those phrenzies which are increased  
‘ from hence are difficult to cure.’ And in another place <sup>b</sup>; *In angina, absque signis (ἀσήμως) dolores ad caput cum febre, perniciosi:* ‘ That pains  
F f 4 ‘ in

<sup>z</sup> Prorrh. Lib. I. textu 11. Charter. Tom. VIII. p. 707.

<sup>a</sup> N° 168. ibid. pag. 867.

<sup>b</sup> N° 372. ibid. pag. 872.

‘ in the head with a fever in a quinsy, without good signs, are pernicious.’ But in such patients a constant delirium arose with study, which Hippocrates tells us is much more dangerous than that which happens with laughter, as we said before in the comment to §. 700, because from thence the patient is greatly fatigued. Thus Boerhaave saw a noble virgin, who endeavoured day and night to pass a thread through the eye of a needle till she lost her reason. Another patient was continually collecting knots together without intermission. I have seen many such cases, wherein the patients have always continued laborious, and employed with the strictest attention of mind in the works of healthy people.

Those phrenzies in which the patient is very busy about the necessaries of life, are the worst.

This prognosis is given us by Hippocrates <sup>c</sup> in his Coan prognostics, and has been already mentioned in the comment to §. 700. By necessaries here we understand those things which are absolutely required to support life, and cure this dangerous disease. Thus if such patients abstain from sleep for fear of being murdered, refuse to lie in a dark place, or reject all food and drink for fear poison should be offered in them, &c. it is sufficiently evident, that every thing must then turn out for the worse. This kind of phrenzy seems to have been pointed out by Hippocrates <sup>d</sup>, when he says, *Ex phrenitide ita perit. In hoc morbo perpetuo delirant, quum nimirum sanguis corruptus* &  
extra

<sup>c</sup> N<sup>o</sup> 100. Charter. Tom. VIII. pag. 857.

<sup>d</sup> De Morbis, Lib. I. cap. ultimo. Charter. Tom. VII. pag 549.



*extra consuetam agitationem motus sit. Quumque desipiant, nihil quidquam effatu dignum eorum, quæ offeruntur, accipiunt. Procedente vero tempore marcescunt, tum a febre, tum quod nihil alantur: ‘ A patient dies of a phrenzy in the following manner; in this disease they are perpetually delirious from the corruption of the blood, and its agitation with an extraordinary motion. And when their reason is gone, they take nothing proper which is offered to them. But in process of time they waste away, as well from the fever, as because they take no nourishment.’*

## S E C T.    DCCLXXV.

**T**HE bodies of those who have died of a phrenzy being opened, have been found with the meninges inflamed, or a gangrene, abscess, or sphacelus of the brain, or some acrid corroding ichor or matter.

Nothing conduces more to promote the art of healing, than, after a careful observation made through the whole course of the disease, to examine into the dead body after death, to discover what parts were affected, and what changes have happened to them. For by this means it is best discovered, whether any error has been committed or not in the diagnosis, prognosis, or cure of the disease. But it appears from the observations of the generality of the best physicians, that such signs have appeared in the bodies of those dying of a phrenzy, as manifestly denote an inflammation to have preceded. A virgin ill of an acute fever, with a continual and fierce delirium, being brought into the hospital, after two days time she expired.

The

The skull of the diseased being opened, the celebrated Boerhaave shewed his auditors the pia mater of the brain all over red and inflamed, and even the cortical part of the brain itself, which is naturally of a grey colour, appeared as red as if its vessels had been injected by the art of the anatomist with a red matter. If we consider the accounts given us by Bonetus in his *sepulchretum anatomicum*, and the other writers of observations, it will appear from many instances, that a suppuration, gangrene, and sphacelus, which are the usual ways wherein a violent and irresolvable inflammation terminates, have been found in the bodies of those dying in a phrenzy. But even sometimes the membranes of the brain are found thick, hard, and in a manner schirrhous, especially in those people who have been often phrenitic, or subject to an inflammation here. Thus in the man, who had several times a violent phrenzy for the space of two years, and afterwards perished of an abscess in the liver, the dura mater was found strongly adhering to the skull, and much thicker and stronger than usual, its falciform process appearing almost of a bony consistence throughout its whole length. The pia mater was in strength and firmness like the dura mater of healthy people, very easily separated on all sides from the subjacent brain, and appeared very thick set with numerous blood-vessels. The brain itself was much drier and firmer than usual, but in its ventricles was found a quantity of serum \*. But the acrid and corroding ichor which is here sometimes found, arises either from matter degenerating and corrupting by long standing, or from the gangrenous corrupt matter. Moreover, when these very tender vessels are stuffed

\* Acad. des Sciences l'An. 1706. Mem. p. 662, 663.



ed up with impervious humours, or compressed by the distension of the adjacent vessels, the humours being urged with a swifter motion by the fever, there is danger of their breaking and extravasating their contained fluids, which by stagnating may easily be converted into an acrid ichor.

## S E C T. DCCLXXVI.

**F**ROM whence likewise we are acquainted with the proximate cause of a true phrenzy, arising primarily from a true inflammation of the pia and dura mater. But that the proximate cause of a symptomatic phrenzy is an inflammation of the like kind, arising from a translocation or flux of the inflammatory matter of the meninges of the brain.

At §. 771 we defined a phrenzy, not from understanding the proximate causes constituting this disease, but from such symptoms or appearances, as are allowed by the general consent of all physicians constantly to attend in this disorder; namely, *Feroci nempe, & perpetuo delirio a cerebro primario affecto cum febre acuta continua*: ‘That it is a  
‘ fierce and perpetual delirium from the brain it-  
‘ self originally affected, joined with an acute  
‘ continual fever.’ But after every thing that relates to the diagnosis and prognosis has been carefully considered, it seems that we may safely conclude, agreeable to the present aphorism, that an inflammation originally raised in the meninges of the brain constitutes the proximate cause of a true phrenzy. But this will evidently appear, if we consider what has been said concerning the signs of  
a pre-

a present inflammation at §. 382. For a red tumour, pain from the distended vessels, hardness and resistance from the affected part, great heat, pulsation, fever, and its consequences, teach us that an inflammation is present. It is indeed true, that some of these signs manifestly appear only when the inflammation is seated in some external part of the body ; yet if we consider the appearances which have been proved at §. 772, to precede a true phrenzy, it will appear that all these signs attend in this disorder. For the redness of the face and eyes, the turgescence and fierceness of the countenance, with a protuberance or staring of the eyes, and dripping of blood from the nose, (see §. 773. N<sup>o</sup> 4.) sufficiently prove, that not only the larger vessels are distended with red blood, but likewise that by entering the dilated orifices of the smaller vessels by an error of place, it hesitates or stagnates in their narrowest extremities: whence it is concluded, as we there demonstrated, that the like disorder takes place also in the interior parts of the head. Another sign of inflammation is afforded from the great heat and pulsation within the head, which is often so violent that the skull seems ready to split to the unfortunate patient. The acute continual fever, and the preceding inflammatory disposition, are still further confirmations of what has been said: so that there seems to be no room to doubt in this respect.

But the great pain in the head seems to teach us, that the membranes in the brain are affected, and especially the dura mater, which performing the office of an internal periosteum by lining the skull, firmly adheres to it on all sides by the vessels which it sends into and receives from the bone, and therefore it cannot be distended by an inflammatory tumour, without causing a great distraction of those



those small vessels; add to this, that the arteries of the dura mater being furnished with elastic strong coats, more powerfully resist the distending humours. Perhaps also a pain is excited in the pia mater from the same cause. But the cortical substance of the brain itself may be corroded, cut, &c. without pain, as is evident from what has been said concerning fungous excrescencies of the brain in the history of wounds of the head. But the medullary substance of the brain lying deeper, and more out of the way, is affected more slowly, and seems immediately to cause convulsions, as we likewise proved in the same place. But since a violent pain in the head precedes a true phrenzy, it is evident the meninges of the brain are affected, before its functions are as yet much disturbed. But as the pia mater invests the brain, and enters into all its inequalities or furrows, it is evident that an inflammation of it must soon affect the brain in the same manner with the like disorder, since they are not always contiguous, but continuous to each other by the vessels which they mutually send out; and it likewise appears from what has been said under the preceding aphorism, that the truth of this is likewise proved by observations made on the dead bodies of phrenetic patients. But in the mean time it is evident enough, that an inflammation of the pia mater is alone sufficient to disturb the motions of the brain, inasmuch as the cortical substance of the brain receives no vessels but from that membrane; and in the comment to §. 701, it was proved that an obstruction of any kind impeded the influx, transflux, and efflux of the humours through the brain, too great a velocity or stagnation of them may produce a delirium of the worst kind.

When

When therefore the meninges of the brain being first and originally affected with an inflammation, is attended with a fierce and constant delirium; it is called a true phrenzy. But if there are first manifest signs of an inflammation in other parts of the body, and then the phlogistic matter is translated from those parts to the meninges of the brain, it is to be called a symptomatic phrenzy, as we observed before more at large.

## S E C T. DCCLXXVII.

**E**VERY thing that can produce an inflammation in these parts, may therefore perform the office of the nearest or proximate cause (§. 772.)

For hitherto belong all the causes of inflammation, of which we treated when we reckoned them up in the history of that disorder; more especially if such other causes likewise concur, as determine the general causes of inflammation towards the head; such as being in the sun, watchings, anger, &c. of all which we treated in the comment to §. 772.

## S E C T. DCCLXXVIII.

**B**UT from hence likewise we have a true diagnosis both of the original and symptomatic phrenzy.

For if a fierce and perpetual delirium arises after a great pain and violent heat within the head, joined with an acute continual fever, it is a true phrenzy; but then there are signs of an inflammation



mation appearing, first in some other part of the body, and afterwards affecting the head, it is a symptomatic phrenzy.

S E C T. DCCLXXIX.

**T**HE cure of this disorder requires an attention to the following particulars.

The appearances of varices, or of the hæmorrhoidal flux, are useful signs in phrenitic patients.

A flux of the bowels is good.

A pain in the breast or feet, or a violent cough supervening, often terminates the disease.

A phrenzy is likewise often terminated by an hæmorrhage.

It was the principal care of the ancient physicians diligently to remark the changes which happened in diseases; and by that means to learn by a faithful observation, the ways in which diseases tend to health or death, that they might be afterwards enabled to promote the former, and prevent or retard the latter by a suitable method of cure. Hence we find Hippocrates so operose or exact in the semiotic part of medicine; and thus he has increased and dignified the art of healing with so many practical rules, which have been approved and confirmed by the general acknowledgment of physicians through so many ages; which yet he seems to have collected from observation in diseases, as will appear to any one who compares his aphorisms with what he has given us in his books of epidemics. Even Celsus<sup>f</sup> well remarks, that  
this

<sup>f</sup> In Præfatione, p. 9.

this was the origin of phyfic. when he treats concerning the various sects of physicians : *Non enim post rationem medicina inventa est, sed post inventam medicinam ratio quæsitæ est* : ‘ For the medicine was

‘ not found after the reason, but the reason was ‘ sought for after the medicine was discovered.’

Among the more modern physicians, Sydenham has followed the same method of practice, and has alone promoted phyfic more than the numerous physicians before him, who indulged themselves in the most subtle speculations, endeavouring to explain the most latent causes of diseases *à priori*. But this great physician has confessed, that when he took upon him to discover the nature or genus of a disease, some patients were lost, who might have been saved, if he had been first acquainted with the genuine method of curing those diseases ; but this is unavoidable, and every one knows, *Sic medicinam ortam fuisse, subinde aliorum salute, aliorum interitu, perniciofa discernentem a salutaribus* :

‘ That medicine, or the art of healing, which distinguishes what is pernicious from what is salutary, arose sometimes from the health or recovery of some patients, and sometimes from the ‘ destruction of others &c.’ Nor do those avoid these disadvantages, who being furnished with specious, but insignificant hypotheses, chalk out to themselves, upon so weak a foundation, a method of healing in diseases ; while in the mean time, by neglecting the attentive observation to diseases, they stick as much in the clay as ever, and are no more able to relieve their patients, after many fatal events, than at first.

Therefore, before we treat of the cure of a phrenzy, it will be convenient for us to see what  
a faithful



a faithful observation has taught us to be useful in this disease.

Varices.] From what has been hitherto said concerning a phrenzy, it is sufficiently evident, that in this disease the vessels of the encephalon are charged with too great a quantity of blood drove too powerfully into them; and therefore in the cure, every thing will be serviceable which lessens the too great quantity of the blood, and drives its impetus from the head towards other parts, such as we before recommended in the cure of a febrile delirium at §. 702. But a varix is a preternatural distension or dilatation of a vein, and happens above all the most frequently in the lower parts of the body, where it is difficult for the blood to ascend from its perpendicular course and distance from the heart. When therefore the veins of the legs become varicose in phrenitic patients, we know that a quantity of the blood is retained in them, whence less blood is returned to the heart, and that the superior vessels are so much the less filled in proportion. Moreover, we often render the veins in some measure varicose by art, to abate the increased velocity of the blood, by applying moderate ligatures upon the limbs to compress them, as we observed before in the comment to §. 691. And the same method is often used likewise with physicians to suppress too profuse hæmorrhages, as we observed in the comment to §. 743. The reason is therefore evident, why varices are serviceable to phrenitic patients. Even Hippocrates<sup>a</sup> places so great hopes in varices, that he expects a termination even of madness itself from them. But whether or no, besides the forementioned effects of varices to be understood

Vol. VII.

G g

from

<sup>a</sup> Aphor. 21. Sect. VI. Charter. Tom. IX. pag. 260.

from the human fabric, the swelling of the veins in the legs may affect the head by the action of some regimen or rule in the body, remains a question (concerning which, see §. 781.) The following aphorism of Hippocrates seems to intimate some such thing; where he says, *Qui calvi sunt, illis varices non fiunt. Quibus vero calvis existentibus varices succedunt, illi rursus capillati fiunt*: ‘ That those who are bald have no varices happen to them: But in those who being bald have varices happen, such have their hair grow again<sup>i</sup>.’ They who ridiculously laugh at this text as altogether absurd, as they can make out no consent or communication betwixt the hairy scalp of the head, and the distended veins of the legs; let such see whether they can better understand, why about the age of puberty the hairs grow out about the private parts, when at the same time the spermatic veins often swell and become varicose; and in males the beard appears, and the voice is changed, &c. while again all these appearances are often altered in those who are castrated. It is sufficient to a practical physician to know what he may expect, good or bad, from varices appearing in the course of diseases, even though he does not distinctly understand the connection betwixt the preceding cause, and the concomitant or consequent effect. Hippocrates<sup>k</sup> elsewhere remarks, that varices are not to be expected in the legs before the age of puberty.

The hæmorrhoidal flux.] For the hæmorrhoidal vessels and carotid arteries convey the blood in opposite directions; from whence a revulsion may reasonably be expected from the head, when there is

<sup>i</sup> Ibidem, Aphor. 34. pag. 270.

<sup>k</sup> Coac. Prænot. N<sup>o</sup> 512. Charter. Tom. VIII. pag. 882.



is such a flux. It is well known that many people are accustomed twice a year, and in some much oftener, to a discharge of blood from the anus. But if this evacuation does not happen about the time when the piles used to bleed, they are generally afflicted with a vertigo, ringing in the ears, and the like symptoms, which denote the brain to be slightly affected. Even medical history informs us of epilepsies, madness, and fatal apoplexies which have ensued, when this accustomed discharge of blood from the anus has been intercepted either spontaneously, or by an imprudent treatment. Thus, *Alcippus hæmorrhoides habens curari prohibebatur : curatus vero mania correptus fuit* : ' Alcippus having the piles was forbid being cured of them by Hippocrates ; but after he was cured, he was seized with madness ' . But again Hippocrates tells us, it is a good sign for the piles to follow after an apoplexy or madness (see the comment to §. 702.) and he remarks, that those diseases are this way terminated. From all which it is evident, how much good may be expected from the hæmorrhoidal flux in diseases of the head.

A flux from the bowels is good.] We have already seen at §. 594, that the material cause of a fever being subdued, dissolved, and rendered moveable by the fever itself, is sometimes expelled from the body by stool ; and therefore in this respect a flux from the bowels may be useful in a phrenzy. But, as we there observed, such a flux of the bowels ought to appear after the signs of concoction have preceded, since the same symptom is of bad import, and sometimes even fatal in the beginning of fevers, as we said at §. 741. But in

G g 2

the

<sup>1</sup> Epidem. 4. text. 51. Charter. Tom. IX. pag. 331.

the present disease, a flux of the bowels may be not only useful in discharging the morbid matter, but also by emptying the vessels in the abdominal viscera of the humours which flow thither, and lessening the resistance to the impulse of the blood, it may happily divert the impetus and quantity of the humours from the head, which is a thing of the greatest moment in the cure of a phrenzy. But the observations of the ancient physicians teach us, that a flux of the bowels is useful in those diseases, in which the vessels of the head are too much distended. Thus we have seen in the comment to §. 720, that a diarrhœa is useful to such as have an inflammation of the eyes. *Quæ caput concutunt, aurium sonitus facientia, hæmorrhagiam faciunt, vel mulieri menses deducunt, tum alias, tum si secundum spinam ardor consequatur. Æque autem & (hæc) dysenterica:* ‘ Such things as shake the head, and excite a noise in the ears, produce an hæmorrhage from the nose, and bring down the menses in women; or by other ways, when a burning heat follows along the spine. But such things as are inclined to excite a dysentery have likewise the same effect <sup>m</sup>.’ From which text it seems evident, that the termination of those diseases, wherein the vessels of the head are too much distended, was equally as well expected from Hippocrates by a flux of the bowels, as from hæmorrhages. Hitherto likewise seems to relate another text, namely, *In febris pulsus & dolor secundum venam, quæ est in collo, in dysenteriam finitur:* ‘ That the pulsation and pains which run along the neck, according to the course of the blood-vessels, in fevers, is terminated in a dysentery <sup>n</sup>.’

But

<sup>m</sup> Coac. Prænot. N° 168. Charter. Tom. VIII. pag. 861.

<sup>n</sup> Ibid. N° 125. pag. 858.



But in another place ° he remarks the wonderful consent or intercourse betwixt the head and the bowels, and the reverse, of which we took notice before in the comment to §. 722. But the passage runs thus : *Quibus biliosæ sunt dejectiones, surditate orta cessant ; Et quibus surditas, biliosis abortis dejectionibus cessat :* ‘ In those who have bilious stools, the flux ceases when they become deaf ; and again, bilious stools remove deafness, when that has preceded.’ But Galen <sup>p</sup> remarks in his comment to this text, that we are not here to understand a confirmed deafness, which is often very difficult to cure ; but only such a deafness as happens on a sudden in fevers. From all which it is evident, that much good may be expected from a flux of the bowels in diseases of the head, and that therefore Hippocrates <sup>a</sup> has judged it to be useful for a dysentery to follow after madness.

Pain in the breast and feet, [Ec.] When we treated of the symptoms of a phrenzy at §. 772, it was observed to appear from the most certain observations, that an inflammation arising in some part of the body, however remote from the head, might yet leave the place of its first residence, and by a dangerous metastasis be transferred to the head ; and we there likewise enumerated those signs which teach such a disorder is to be feared. It will not therefore seem strange to any one, that sometimes a metastasis should, on the contrary, be made from the head towards other parts, and that frequently to the great relief of this dangerous disorder ; more especially if the derivation is made not to any of the viscera, but to the thighs, legs, or other parts most remote from the head. Hence

G g 3

Hippo-

° Aphor. 28. Sect. IV. Charter. Tom. IX. pag. 150.

<sup>p</sup> Ibidem.

<sup>a</sup> Aphor. 5<sup>æ</sup> Sect. VII. ibid. pag. 294.

Hippocrates says <sup>r</sup>, *Dolores, qui ad inferas delabuntur partes, toleratu faciles* : ‘ The pains which descend to the lower parts of the body are easily tolerable.’ But that diseases of the head are sometimes transferred to the breast, seems to be pointed out in another place of Hippocrates <sup>s</sup>, which runs thus: *Quodcunque superiorum partium doluerit, dolor ad coxendices, vel ad genua, vel asthma hæc omnia solvit* : ‘ When any of the more superior parts is painful, a pain arising at the hips, thighs, or knees, as also an asthma, terminates all such disorders of the most superior parts.’ Even in madness itself he seems to expect some relief from such a derivation, when he says <sup>t</sup>, *Ex mania ad raucedinem cum tussi (fit) abscessus* : ‘ A hoarseness with a cough arising in madness makes a crisis or termination of the disease.’

What has been here advanced from Hippocrates is likewise confirmed by the histories of the patients which he gives us in his Epidemics. Thus in Herophontes <sup>u</sup>, whom he assures us escaped from a most dangerous fever beyond expectation, there were watchings with deafness on the fifth day of the disease, and a delirium on the sixth day : but on the eighth day there was a pain in the groin, and afterwards pains invaded each of the legs, whereupon the patient perfectly returned to himself, had a very easy night, and the urine, which was before thin and black, appeared now better coloured, and with something of a sediment. But after the disease had been terminated by an imperfect crisis on the ninth day, in five days more the fever

<sup>r</sup> Proorrh. Lib. I. Charter. Tom. VIII. pag. 781.

<sup>s</sup> Epidemic. 2. Charter. Tom. IX. pag. 191.

<sup>t</sup> Coac. Prænot. N<sup>o</sup> 484. Charter. Tom. VIII. pag. 880.

<sup>u</sup> Epidem. 1. ægrot. 3. Charter. Tom. IX. pag. 193.



fever returned acute with deafness; but on the third day after from the return, a pain invaded the legs, whereupon the deafness abated. Thus also in the virgin who lay in the porch of the temple of Abdera, afflicted with deafness and a delirium in an acute fever, he observes, that on the twentieth day of the disease a pain arose in the feet, but at the same time the deafness and delirium ceased; and he observes, that this pain in the feet still continued after the patient was perfectly recovered in all respects from the fever<sup>w</sup>.

Likewise by an hæmorrhage.] We have several times observed before, that a bleeding from the nose is to be understood by the term hæmorrhage, when it is not expressly said to proceed from some other part; because blood is this way most frequently evacuated in acute diseases. But since in a phrenzy the arteries of the head are greatly distended by the quantity and impetus of the blood, the reason is evident why an hæmorrhage from the nose so frequently happens in this disease. For most of those signs which presage an hæmorrhage from the nose (see §. 741.) are present in a phrenzy. But at the time when there is an hæmorrhage from the nose, the blood drove in a great quantity through the trunks of the carotid arteries, will be more copiously derived to the branches of the external carotid, where there is now a less resistance; and therefore an opportunity will be given to the impervious blood hesitating by an inflammatory thickness in the vessels of the encephalon, where now there is a less impulse of the fluids urging behind, to be repelled back into the larger trunks (see §. 400. N° 1.) and thus may be obtained a resolution of the inflammation. But since anatomical

G g 4

injections

<sup>w</sup> Epidem. 3. ægrot. 7. ibid. pag. 301, 302.

injections teach us, that branches of arteries are dispersed through the internal parts of the nose from the internal carotids; if such small arteries are opened, and discharge their blood, a revulsion will be made immediately from the parts obstructed and inflamed. But concerning the signs which usually precede such a salutary hæmorrhage from the nose, we treated before in the commentaries to §. 741, where we considered every thing remarkable relating to this matter.

There are moreover many instances in medical history of phrenzies cured by a spontaneous hæmorrhage from the nose. Even Zacutus Lusitanus was bold enough to make such an artificial evacuation, when he had the care of a young captain in the army, of a plethoric and square habit, afflicted with a violent phrenzy. For he ordered one, who stood by to quiet his raving by sweet singing, to thrust a quill, split into many points like a star, up to the root of the nose, and there forcibly to turn it round; which being done, there ensued a most copious hæmorrhage from the right nostril, with such good success that the patient recovered from the most dangerous disease, being afterwards succeeded with a sweat and flux from the bowels<sup>x</sup>.

But it is to be remarked, that critical sweats have been sometimes observed salutary in a phrenzy, either alone, or attended with an hæmorrhage from the nose. Therefore Galen tells us<sup>y</sup>, *Judicat & phrenitidem sudor bonus, & præcipue si ex capite multus & calidus fluxerit, sudante simul reliquo corpore. Fit etiam aliter, quod per narium hæmorrhagiam phrenitis firmiter (βεβαιως) judicetur*:  
 † That a good sweat terminates a phrenzy, especially

<sup>x</sup> Zacut. Lusit. Observ. 12. pag. 22.

<sup>y</sup> De Crisibus, Lib. III. cap. 3. Charter. Tom. VIII. p. 439.



cially if it flows copiously and warm from the head, while the other parts of the body sweat at the same time. Otherwise also a phrenzy is certainly terminated by an hæmorrhage from the nose.' Thus we read in Lucian<sup>z</sup>, that the phrenitic Abderites (see §. 773.) had a termination of their fever about the seventh day by a copious hæmorrhage from the nose, and that in some a plentiful sweat, arising about the same time, had the like effect.

## S E C T. DCCLXXX.

**A** True phrenzy requires the most speedy application of the most powerful remedies, which are able to remove the inflammation raised in the arteries of the brain.

We have seen before at §. 776, that a true phrenzy is really an inflammation in the meninges of the brain, and that sometimes it is even extended into the cortical substance of the brain itself. But it appears from what has been said in the history of inflammation, that there are three ways of its termination, namely, by resolution, by suppuration, or by a gangrene and sphacelus. But it is evident enough, that a resolution only can be admitted in this place, where a suppuration formed is almost constantly fatal, and still much more so is a gangrene or sphacelus. 'Tis indeed true, that in the history of wounds in the head, it appeared from many observations, that the substance of the brain might be injured by wounds, suppuration, putrefaction, corroding medicines, &c. so as to consume

<sup>z</sup> In Capite, cui titulus: *Quomodo conscribenda sit historia*, Tom. I. p. 657.

consume a considerable part of it, the patient not only surviving, but frequently all the functions of the brain being perfectly restored : but then in these cases there was a passage for the corrupted parts to be evacuated. But when a suppuration follows a true phrenzy, the confined matter rendered more acrid by standing, may in a little time destroy the pulp-like substance of the encephalon. But for the dispersing an inflammation, as was said at §. 386, it is necessary for the humours flowing to be mild, their motion sedate, and the obstructing cause to be slight, or not over compact, and but of small extent. But since a true phrenzy is accompanied with an acute continual fever (see §. 771.) there is not only an impetuous motion of the humours, but likewise a sudden degeneration of them is to be feared ; and at the same time the impervious blood is more and more impacted into the narrow extremities of the vessels, whence the difficulty of a resolution will be increasing almost every moment. Add to this, that the obstructed vessels swelling and dilating will compress the adjacent smaller vessels, that after expressing their contained fluid occasions their sides to grow together, whence for the future remain incurable injuries of the functions of the brain. Hence therefore it is evident, that this disorder requires the most speedy application of the most powerful remedies, since it is in its own nature so dangerous, and so quickly fatal.

## S E C T. DCCLXXXI.

**T**HESE remedies are to be taken chiefly from what has been proposed under the cure of inflammation in general, having



having a regard to the following particulars. Blood-letting must be used plentifully from a large orifice, or from several veins at once, as in the foot, neck, and forehead. Diluent antiphlogistic decoctions with nitrous medicines are to be plentifully exhibited. Then cooling purges are to be given, with plenty of nitrous diluent drinks. Clysters of the like kind are to be used, with the addition of laxatives. The anus is to be fomented, and the piles are to be rubbed with the leaves of a fig-tree, &c. or to be evacuated by the application of leaches. Mouth-washes and gargles, which are cooling and lenient, are to be frequently used. The nostrils, eyes, and ears, are to be fomented with vapours, and the head is to be shaved. These being premised, and the disorder still proving inflexible, recourse must be had to the use of opiates, washing of the feet, and the application of mild epispastics and cupping-glasses to the lower extremities. The body is to be refreshed with an air moderately cool, and kept in an erect posture.

When we treated of the cure of an inflammation by a resolution at §. 395, we reckoned up the following indications, namely, to prevent any further injury to the vessels, and to remove that which is at present offered to them; afterwards to procure the obstructing matter to be fluid, and of a mild nature: for a mild disposition of the humours is necessary to disperse an inflammation. Or, lastly, if the obstructing matter could not be reduced to a state of fluidity, there still remained hopes that  
by

by lessening the impulse of the humours urging behind, thus the obstructed vessels, by their natural contractile force, might press back the obstructing particles into the larger vessels. But then it appeared from what was said at §. 396, 397, 398, 400, that to answer all these intentions bleeding is necessary. Therefore,

Blood-letting must be used plentifully, &c.] For it was proved at §. 141, that, to repel back the obstructing matter impacted into the vessels, nothing is more efficacious than a copious and sudden bleeding. But thus also at the same time the great heat of the internal parts of the head, which usually precedes a true phrenzy (see §. 772.) is lessened, as we demonstrated in the cure of heat in fevers at §. 691, and the following; and likewise the too great fulness of the vessels is at the same time removed. Asclepiades <sup>a</sup> indeed condemns blood-letting in this disorder; affirming, *Perinde esse his sanguinem mitti, ac si trucidentur*: ‘ That ‘ to let blood in such patients is in a manner to ‘ murder them.’ But as Celsus <sup>b</sup> well observes, a phrenzy never attends without a violent fever; and that it was the opinion of Asclepiades, blood ought never to be taken but in the remission of a fever, for which reason he has condemned blood-letting in this disorder: but concerning this, you may consult what has been said in the comment to §. 610, with a view to abate the violence of the fever by blood-letting. But in the mean time Aretæus <sup>c</sup> seems to be against plentiful blood-letting in this disorder, namely, because he feared a syncope, to which he supposed a phrenzy more particularly inclined beyond other diseases. Perhaps the

<sup>a</sup> A. Corn. Cels. Lib. III. cap. 18. p. 150.

<sup>b</sup> Ibidem.

<sup>c</sup> Lib. I. de Curat. Morb. acutor. cap. 1. p. 73.



the reason of this might be, because the brain was esteemed a cold and bloodless part, and therefore he imagined profuse blood-letting to be less useful in the diseases of it. We are almost persuaded to believe the same thing from the following passage in that author<sup>d</sup>: *Verum tamen audacius vena solvenda est, si a præcordiis, non a capite morbus oritur: ibi enim vitæ principium est. Caput vero sensus nervorumque originis locus est, sanguinemque potius a corde trahit, quam aliis distribuit, &c.* ‘But a vein is to be more boldly opened, if the disease arises not in the head, but in the præcordia, where the principle of life is seated: but the head is the seat and origin of the nerves and senses, and rather draws blood from the heart than distributes it to other parts, &c.’ The chemists have boasted themselves able to do wonders in this disorder by a narcotic sulphur of vitriol, which, they say, is able to command a truce at least, if not to make an entire cure of the phrenzy. But until they can inform us, how they can by the same means remove an inflammation in the hand, or in any other part, no prudent person will rely upon them in this doubtful, and often suddenly fatal disease.

But (as we declared at §. 779.) it appeared from observations, that a flux of blood in the piles, in a direction perfectly opposite to the head, is of service in phrenitic patients; and likewise that an hæmorrhage from the nose has frequently terminated this disorder; therefore both these methods of nature are imitated by physicians, when they open a vein in the foot, neck, or forehead; and even sometimes when the phrenzy is very violent, they open several veins at the same time to make a sudden depletion and a powerful revulsion, suffering

I the

<sup>d</sup> Ibidem.

the evacuation to be continued till the patient faints; which Galen esteems as the greatest remedy in the most violent inflammations, ardent fevers, and the most intense pains, as we said before at §. 141. But, as we there observed, so bold a blood-letting ought never to be put in practice, but when the physician is present to feel the pulse, while the blood is flowing from the orifices of the veins, whereby he will readily perceive how far the evacuation may be permitted with prudence and safety.

Blood-letting is therefore justly esteemed by Trallian<sup>e</sup> the first and greatest of all remedies for the cure of a true phrenzy; and for the prevention of it when about to happen; and this author was the more solicitous to discharge a great quantity of blood at once, because it was often troublesome to repeat the operation upon these phrenitic patients frequently raving; therefore he discharged as much at the beginning, and as equal to the intention, as if he had bled the patient a second time; and he assures us this was performed with the most happy success, by opening a vein in the forehead.

But since it appears that a phrenzy is most happily terminated by a copious hæmorrhage from the rupture of an artery in the nose, therefore some physicians have ventured to open an artery with the lancet, thereby to make a sudden evacuation and most powerful revulsion of the quantity and impetus of the blood from the encephalon. In this case they generally chuse the temporal artery, because it is visible enough by its pulsation, and may be conveniently compressed against the subjacent skull after the bleeding is over, so as to suffer the wound to heal with safety. But for the particulars

<sup>e</sup> Lib. I. cap. 13. p. 48.



culars to be observed in arteriotomy, you may consult Dionis<sup>f</sup> and the other writers of operations.

Diluents, &c. and afterwards cooling purges, &c.] Concerning these see what has been said under the cure of inflammation in general at §. 396, and the following.

Clysters of the like kind, &c.] For these hasten the operation of the cooling purges which were taken by the mouth, and by relaxing the vessels of the intestines, they make a revulsion of the quantity and impetus of the humours from the head. At the same time they have likewise a happy effect in abating the violence of the fever, as we observed in the comment to §. 610, whence they are serviceable in every respect.

The anus is to be fomented, and the piles are to be rubbed, &c.] For we have already seen, that a flux or discharge by the piles is useful to phrenitic patients (see §. 779.) and therefore we endeavour to promote the piles by relaxing these parts with fomentations and clysters: but when the piles once begin to appear, they are to be rubbed with the rough leaves of a fig-tree, till the blood begins to distil from them, or else they are to be opened by the application of leaches. See what has been said in the comment to §. 702.

Mouth-washes and gargles, &c. the nostrils, eyes, and ears, to be fomented with vapours.] For thus all the branches of the external carotid dispersed through these parts are relaxed, and by that means the quantity and impetus of the blood is diverted from the internal parts of the head. At the same time the nostrils, by moistening the vessels there distributed, are well disposed to a salutary hæmorrhage in this disease. See what has been said concerning

<sup>f</sup> Cours d'Operations de Chirurgie demonstrat. 7. p. 407, 408.

concerning the application of emollient remedies to the head in the cure of a febrile delirium at §. 702; as also what has been said upon this subject in the cure of an ardent fever at §. 743.

The head is to be shaved.] For by shaving off the hair, the whole skin of the head is rendered extremely perspirable; which effect seems to have been expected by Cælius Aurelianus<sup>g</sup> from shaving of the head in a phrenzy. The head is thus certainly agreeably cooled, and the patient sometimes perceives a considerable change; and the alteration thus made is so considerable, that Aretæus<sup>h</sup> apprehends danger from it, when he observes, that if the hair is long, it may be first cut half way; but if short, it may be cut close to the skin. But it appears from the observations of Sydenham<sup>i</sup>, that there is no danger in this respect; for he assures us, that he always advised this, and with very good success. But after the head was shaved, he defended it from the external cold by a cap, without applying any kind of emplaster to the naked head. Some indeed recommend such plasters; but all oily and fat substances adhering to the skin lessen the perspiration, which in the present case is required to be free. Shaving of the head is likewise commended by Celsus<sup>k</sup> for the cure of a phrenzy. But it is evident enough, that this operation is often difficult when the patient is raving in a violent manner; and therefore it is better to perform this, when the signs denote an approaching phrenzy is to be feared.

These being premised, and the disorder still proving inflexible, recourse must be had to the use  
of

<sup>g</sup> Acutor. Morb. Lib. I. cap. 10. p. 30.

<sup>h</sup> De curatione Morbor. acut. Lib. I. cap. 1. p. 30.

<sup>i</sup> In Schedula Monitor. de novæ febris ingressu, p. 660.

<sup>k</sup> Lib. III, cap. 18. p. 150.



of opiates.] After the several remedies before-mentioned have so far diminished the impetus of the humours, and rendered them so thin and dilute, that one may reasonably hope to remove the inflammation seated within the head, by a mild resolution; and when the signs teach that the disease begins to abate, though the delirium or watchings, which are so bad in this disease, still continue, then, and not before, the use of opiates may be called in, as Sydenham well observes<sup>1</sup>. But it is customary for physicians to begin with the milder anodynes, and to proceed gradually to the stronger, if the former are not sufficient. See what has been said concerning the use of these in the cure of a febrile delirium in the comment to §. 702.

Washing of the feet, with the application of mild epispastics and cupping-glasses, &c.] For by all these the vessels of the lower parts are relaxed, or by a gentle irritation a greater quantity of humours is derived towards these parts, and consequently a revulsion is made from the parts above. See what has been said concerning such things as make a revulsion of the impetus of the blood towards other parts in the comment to §. 396, N<sup>o</sup> 4; as also in the comment to §. 702, concerning the use of the same remedies. But in the mean time care must be taken not to apply to the lower parts of the body, such things as are able by an acrid stimulus to increase the motion of the humours throughout the whole.

The body is to be refreshed with an air moderately cool, and kept in an erect posture.] How useful this is in moderating the too great violence

<sup>1</sup> Sect. I. cap. 4. p. 81.

of a fever has been said at §. 610; and it was proved in the comment to §. 698, that the heat of the bed, and the confined air, is extremely pernicious in all diseases in which there is already too great an inflammatory heat. But an erect posture of body hinders the blood from urging with so great violence against the head; for we see in healthy people, when they have lain down in an horizontal posture for some hours, the head swells, and the tumour soon disappears when they sit upright any time. It frequently happens, that phrenitic patients raving in a very bad manner, while they are confined down in their bed, become perfectly calm and easy when they sit up in a chair with an erect posture of the body, and but moderately cloathed. But Sydenham so highly valued this method of treating the patient, that he every where inculcates throughout his works, that frequently the whole success of the cure in acute inflammatory diseases depends thereupon; and in his later writings published in his advanced years, he further confirms this practice, and tells us, that it is more especially necessary in a phrenzy. *Hoc enim in statu, quantumlibet sanguinis detrahatur, quantumvis leviter tegatur corpus, quicunque demum liquores refrigerantes ingerantur, non prius sedabitur febris, quam æger se lectulo interdum abstinuerit. Cum calor circumambientis aëris, inter stragula conclusi, sanguinem plus satis exagitet, & procumbentis corporis situs vehementiori impetu eundem in caput impingat.* ‘ For that  
‘ in this state, though blood be taken from a vein,  
‘ and the body but slightly covered, and even  
‘ notwithstanding the cooling liquors taken in, the  
‘ fever will not abate before the patient abstains  
‘ from his bed in the day-time. For the heat of  
‘ the circumambient air confined betwixt the bed-  
‘ clothes, agitates the blood too much, and the  
‘ supine



‘supine posture of the body urges it with too great an impetus to the head<sup>m</sup>.’

These are the remedies which we are taught to be useful in this disease from its own nature, and their salutary use; and from the speedy application of which, the cure of an inflammation raised in the meninges of the brain may be expected by resolution.

But it seems necessary to be observed, that when the violence of the fever is abated, the delirium, coma, great weakness, and other symptoms still continue, and denote that the functions of the brain are as yet disturbed. But recourse must not then be had to blood-letting, purges, and the use of other weakening remedies, to remove such remains of this severe disease; for they usually give way in time to a mild diet, rest, an erect posture of body, &c. For after the inflammation is resolved, the vessels which have been too much distracted by the impulse of the humours urging against the obstructed parts, do not immediately recover their former dimensions; whence the equable motion of the humours through the vessels of the encephalon often continues disturbed for a considerable time, until the distracted fibres by degrees recover strength, and restore the vessels to their pristine firmness. But since the very tender vessels of the encephalon, namely, those of the pia mater and cortical substance of the brain are destitute of elastic coats, the reason is evident why such symptoms often continue for a long time after a true phrenzy. See what has been said upon this subject in the comment to §. 397, where it was proved that the fibres recover their pristine form by their own proper force, when the distracting

H h 2 causes

<sup>m</sup> In *Schedula monitor. de novæ febris ingressu*, p. 659, 660.

causes either cease, or are diminished, and while in the mean time the powers of nutrition are restored.

## S E C T. DCCLXXXII.

**B**UT if a phrenzy arises from some other inflammatory disease first raised, it must be first considered whether the nature of the disease will permit the forementioned remedies (§. 781.) to be used ; if not, it must be treated according to the method adapted to that particular disease, always adding the use of derivative and topical remedies.

This is an admonition of the greatest consequence in practice, namely, in the cure of a symptomatic phrenzy, to attend to the primary nature or genius of the disease, from whence the phrenzy took its origin. For, as we have just now seen, the cure of a true phrenzy requires plentiful bleeding, and sometimes to be boldly repeated, together with a copious evacuation from the bowels with antiphlogistic purges. But this method of treatment is not adapted to the cure of all acute diseases ; and there are sometimes observed epidemic fevers, which, though of an inflammatory kind, will nevertheless not suffer repeated bleeding without damage : moreover, it has appeared in such fevers, that even the symptomatic phrenzy cannot be relieved by violent and repeated evacuations ; but that afterwards this symptom has by degrees disappeared, as the original disease itself has gone off. Such were the epidemical continual fevers described by Sydenham <sup>n</sup> to have spread in London

<sup>n</sup> Sect. V. cap. 2. p. 772, &c.



London in the years 1673, 1674, and 1675. For although the severe head-ach and pains of the sides frequent in these fevers, and the appearance of the blood drawn like that in a pleurisy, were sufficient signs, that more than a small degree of inflammation attended in these fevers; yet Sydenham observes, that repeated bleeding did not relieve the patients. But since in these fevers there usually happens a very ready translation of the morbid matter to the head, he therefore substituted the use of clysters, instead of repeated blood-letting, which the nature of the disease would not admit; and thus he very happily cured a symptomatic phrenzy which attended in these fevers, namely, after opening a vein, and injecting one or two clysters, by giving the patient spirit of vitriol dropped into small beer, or an ordinary drink. But he assures us no other method was successful in this fever<sup>o</sup>. The like has been also remarked by Sydenham<sup>p</sup> in another kind of an epidemic continual fever, which there was a strong tendency to deposit the febrile matter towards the head: and he likewise remarked this particular, that as soon as a phrenzy ensued from such a translation, there then no longer remained any signs of the fever. But he likewise observed, that neither this kind of fever would bear repeated blood-letting; for which reason, after once opening a vein, he gave a cooling purge, repeating it every other day to the third time, and likewise exhibiting a mild diacordiate draught at the hour of sleep, after each dose of the purging medicine. But he did not make use of the spirit of vitriol in the cure of these fevers, as being less convenient in such diseases as require

H h 3

to

<sup>o</sup> Ibid. pag. 289.

<sup>p</sup> In Schedula monitor. de novæ febris ingressu, p. 651, &c.

to be treated with purgatives. But he observes, that if a phrenzy once invaded in this disease, it could not be suddenly removed, nor was it safe to attempt its cure by bleeding or purging repeated beyond the bounds before prescribed<sup>p</sup>; but if a due regimen was observed, the symptoms usually went off in time of their own accord. Thus also to remove the symptomatic phrenzy which attended in the small-pox, Sydenham<sup>r</sup> made use of a method of cure not at all convenient in other cases: for in a lad ten years old, who by the weight of bed-clothes, and the use of heating medicines in the first stage of the small-pox, had the eruption not only impeded, but likewise was so raving, that he could scarce be confined in the bed by all the strength of those who were present; here he immediately gave an ounce of the syrupus de meconio, which having no effect, he ordered the like dose to be repeated after the space of an hour; and the symptoms not yet abating, he repeated the same dose, till the lad had taken two ounces and a half; whereupon those disturbances were happily allayed, and the patient afterwards did well.

These are sufficient to demonstrate, how much the treatment of a symptomatic phrenzy may vary according to the different nature of the primary disease, from whence its origin is derived. But since in such diseases there is always danger of the febrile matter being translated to the brain, it can never be prejudicial to use such medicines as make a derivation towards other parts, and to diminish the too great heat in the head by topical remedies. When therefore we know from the apparent nature of the epidemic disease, or from the signs enumerated

<sup>p</sup> Ibidem, pag. 660.

<sup>r</sup> In Dissertatione Epistolari, pag. 466.



merated at §. 772, that such a metastasis is to be feared, it will be convenient to inject clysters, to relax the lower parts of the body by warm bathing and fomentations, to irritate them with epispastics, and to divert all the impetus of the humours from the head by an erect posture of body; to shave the head, apply oxycrate to the forehead, fix cupping glasses to the legs and thighs, &c that by all these endeavours of art, a symptomatic phrenzy may be prevented, or at least that it may be kept from increasing, if it has already invaded. For all these remedies, or at least the chief of them, have been successfully used by Sydenham in a symptomatic phrenzy, although he varied his method of cure according to the different nature of the primary disease.





---

---

T H E  
I N D E X.

A.

- A**BDOMEN, *flatulent distensions of it after intermitting fevers,* Page 259
- Abstinence, *rigid, improper for the cure of fevers,* 10
- *improper for the cure of intermittents,* 326
- Acid Spirits, *their use in a putrid dissolution or thinness of the blood,* 24
- Acrimony from contagious effluvia, *how a cause of putrid fevers,* 20
- Acute Diseases, *their nature defined,* 379
- Agues, *not always proper to be cured,* 346
- Agues. See Fevers Intermittent.
- Air cool and fresh, *how serviceable in the cure of ardent fevers,* 185
- *cool and fresh for the cure of a phrenzy,* 465
- *cold, injurious to intermitting fevers,* 297
- *destroys the purging force of scammony and rhubarb,* 314
- Anger, *the cause of a phrenzy in acute fevers,* 395
- *in mild people a very bad sign in fevers,* 397

Anguish

## The INDEX.

Anguish from obstruction of the blood through the lungs,	Page 41
——— how a symptom in ardent fevers,	90
Anodynes, their use to suppress hæmorrhages,	207
Animal Functions, how altered in a phrenzy	412
Ardent Fevers, their nature considered (see Fevers,)	72
Astringents, when proper for the cure of intermitting fevers,	304, 368
Autumnal intermitting fevers, in what cases dangerous,	222, 234

### B.

Bark Peruvian, its use in nervous and hysterical diseases,	267, 342
——— how it cures intermitting fevers,	293
——— why it often suspends intermitting fevers, without being able to cure them,	294
——— how to be used for the cure of intermitting fevers,	356
——— when the best remedy for intermitting fevers,	340
——— its use in the cure of intermittents falsely suspected,	341
——— in itself an innocent medicine,	342, 352
——— oftener makes a truce than a cure of intermitting fevers,	344
——— when unsuccessful for the cure of vernal tertians,	346
——— improper when there is an inflammation,	349
——— a great corroborant,	267, 342, 353
Blackness of the urine, a fatal sign in ardent fevers,	162

Blackness



# The INDEX.

Blackness of the tongue, what it denotes in fevers,	Page 405
Bleeding, how useful in fevers,	14
——— natural, more salutary than artificial,	108
——— often terminates ardent fevers,	103, 116
——— salutary signs of,	110, 115
——— from the lungs or kidneys fatal,	164
——— profuse, how remedied,	204, 208
Blood, its texture how dissolved in putrid fevers,	21, 22
——— too thin, the cause of hæmorrhage and bloody urine in the small-pox,	22
——— how vitiated in intermitting fevers,	247, 252
——— its texture dissolved in intermittents,	251
——— the condition of it in intermitting fevers,	264
Blood-letting, when useful in the cure of ardent fevers,	14, 193
——— little used by the Antients,	196
——— generally bad for the cure of intermitting fevers,	324
——— for the cure of a phrenzy.	460
Brain, primarily affected with inflammation in a true phrenzy,	384, 441
Breathing considered as a sign in fevers,	39
——— why difficult in fevers,	42, 82
——— irregular, a fatal sign in fevers,	44
——— cold, a fatal sign in fevers,	46

## C.

Cajus, Dr. his account of the sweating fever,	3
Chronical Diseases how cured by intermitting fevers,	261, 341
——— how produced from the blood vitiated by intermitting fevers,	252, 258
Clysters,	

# The I N D E X.

Clysters, <i>how useful in the cure of ardent fevers,</i>	Page 198
Cold Drinks, <i>when useful in ardent fevers,</i>	190, 192
————— <i>how serviceable in a putrid dissolution of the blood,</i>	24
Coldness of the breath, <i>a fatal sign in fevers,</i>	46
————— of the extremities, <i>a bad sign in ardent fevers,</i>	165
Cooling Medicines, <i>which are proper in fevers,</i>	15
————— proper in the hot fit of inter- mittents,	202, 328 329
Cold Fit of intermitting fevers described,	227
————— of intermittents, <i>how injurious to the solids,</i>	426
————— of intermittents, <i>how it vitiates the fluids,</i>	247, 252
Coma, <i>from a phrenzy,</i>	428
Contagion, <i>epidemical, a cause of intermitting fevers,</i>	291
Continual Fevers. See Fevers.	
Convulsions, <i>a fatal sign in a phrenzy,</i>	433
Costiveness of the bowels, <i>what it denotes in acute fevers,</i>	405
Cough, <i>why a symptom of ardent fevers,</i>	91
Crises, <i>in ardent fevers considered,</i>	119
————— <i>instances of them from Hippocrates,</i>	148
————— <i>various kinds of them,</i>	156
————— <i>most constant in epidemical fevers,</i>	140
Critical Signs in acute diseases, <i>not infallible,</i>	150
Critical Days in fevers considered,	123, 132
Crudity of the urine, <i>a bad sign in fevers,</i>	53
————— <i>a sign of phrenzy in ardent fevers,</i>	408
————— <i>why it happens in the cold fit of intermittents,</i>	236



# The I N D E X.

## D.

<i>Day 7th and 4th the most fatal in ardent fevers,</i>	Page 101
<i>Days critical in fevers considered,</i>	123, 132
<i>Deglutition, injured, a bad sign in ardent fevers,</i>	165
<i>Delirium in ardent fevers considered,</i>	93, 174
<i>Diarrhœa, critical in ardent fevers,</i>	156
<i>————— excessive, how fatal in ardent fevers,</i>	173
<i>————— how it relieves a phrenzy,</i>	451
<i>Diary Fevers described. See Ephemera,</i>	2
<i>Diseases, how cured by intermitting fevers,</i>	261
<i>Driness, a symptom of ardent fevers,</i>	81
<i>————— how relieved in ardent fevers,</i>	189, 200
<i>————— a cause of phrenzy in acute fevers,</i>	397
<i>Dropsy, how it may arise from the blood vitiated by intermitting fevers,</i>	251, 255

## E.

<i>Ephemera, pestilential, of Dr. Cajus described,</i>	3
<i>————— not pestilential, from errors in the non- naturals, without morbid matter,</i>	4
<i>————— its causes slight and manifest,</i>	5
<i>————— symptoms of it are mild,</i>	6
<i>————— how distinguished from intermittents,</i>	8
<i>————— cured by abstinence, rest, and diluents,</i>	10
<i>————— cured by bleeding and cooling medicines,</i>	14, 15
<i>Epidemical Diseases, the most constant in their crises,</i>	140

# The I N D E X.

Epithems, <i>their use in the cure of intermitting fevers,</i>	Page 365
Eruptions, <i>livid or purple, why bad in fevers,</i>	63
Eruginous-Vomitings <i>fatal in a phrenzy,</i>	430
Evacuations, <i>generally improper for the cure of intermittents,</i>	317
———— <i>unseasonable, their ill effects in the cure of intermitting fevers,</i>	320
Exacerbations, <i>bad in ardent fevers,</i>	160
Eyes, <i>sorrowful, why a bad sign in fevers,</i>	57
—— <i>dry and dusty, a fatal sign in fevers,</i>	433

## F.

Fasting <i>condemned in fevers,</i>	11
Fevers, <i>continual and not putrid, described,</i>	2
—— <i>continual and putrid, their nature,</i>	15, 70
Fevers <i>putrid, continual, their prognosis,</i>	33
—— <i>their cure,</i>	67
—— <i>remitting,</i>	72, 93
—— <i>intermitting, become ardent and continual,</i>	74, 93
Fevers <i>ardent, their nature,</i>	72
—— <i>become intermitting,</i>	93
—— <i>continual and intermitting combined together,</i>	76, 77
—— <i>remitting, arise from intermittents,</i>	78
—— <i>ardent, causes of, immediate and remote,</i>	94, 180
—— <i>ardent, cure of,</i>	184
—— <i>intermitting, defined and classed,</i>	212, 217
—— <i>autumnal intermitting, resemble continual fevers,</i>	224, 243
—— <i>their symptoms,</i>	227
—— <i>their symptoms, whence they arise,</i>	230

Fevers,



# The INDEX.

Fevers Intermittent, <i>how they become continual,</i>	Page 243
_____ <i>their affinity with continual</i>	
ones,	274
_____ <i>their periodical returns, whence,</i>	
	272
_____ <i>how doubled,</i>	295
_____ <i>their cure,</i>	297, 306, 339
_____ <i>epidemical, regular in their</i>	
crises,	140
_____ <i>endeavours of nature to depu-</i>	
rate the blood,	300

## G.

Grief, <i>a cause of phrenzy and madness,</i>	396
Gnashing of the Teeth, <i>a fatal sign in a phrenzy,</i>	
	434

## H.

Hæmopthoe, <i>fatal in ardent fevers,</i>	164
Hæmorrhage, <i>how it terminates an ardent fever,</i>	
	105
_____ <i>from the nose, how it relieves a phrenzy,</i>	
	455
_____ <i>salutary signs of,</i>	110, 112, 115
_____ <i>salutary, whence,</i>	116
_____ <i>salutary, known by the pulse,</i>	117
_____ <i>best on critical days in ardent fevers,</i>	
	118, 128
_____ <i>from the lungs or kidneys never critical,</i>	
	164
_____ <i>profuse, how restrained,</i>	204
_____ <i>in fevers, not to be stopped too soon,</i>	
	208
	Hæmor-

# The I N D E X.

Hæmorrhoidal Flux, <i>how it removes a phrenzy,</i>	Page 450
Head-ach, <i>periodical, removed by intermitting fevers,</i>	262
———— <i>periodical, cured by the bark,</i>	282
Head, <i>shaving of it, how it relieves a phrenzy,</i>	464
Heart, <i>palpitations of, cured by intermitting fevers,</i>	262
Heat, <i>apt to cause a phrenzy in fevers,</i>	394
—— of bed-clothes, <i>how mischievous in ardent fevers,</i>	186, 188
—— and coldness of the body <i>considered as signs in fevers,</i>	25, 79
Heating Medicines, <i>bad for intermitting fevers,</i>	244, 270
Hot Fit of intermitting fevers <i>described,</i>	237

## I.

Jaundice, <i>how it may arise from intermitting fevers,</i>	251, 257, 261
Iliac Passion <i>causing a phrenzy, mortal,</i>	438
Indicating Days in ardent fevers <i>described,</i>	144
Inflammation of the head and face, <i>a sign of phrenzy approaching,</i>	410, 416
Inflammation of the meninges of the brain, <i>the cause of a phrenzy,</i>	441
Inflammatory disposition <i>described,</i>	391, 393
———— diseases, <i>their difference,</i>	380
Intermitting Fevers. See Fevers.	
Ipecacuanha, <i>preferable to other vomits for the cure of intermitting fevers,</i>	312
Itching of the nose, <i>a sure sign of a speedy hæmorrhage in ardent fevers,</i>	114
Lethargy	



# The INDEX.

## L.

Lethargy, <i>from a phrenzy,</i>	Page 426
Ligatures, <i>their use upon the limbs in dangerous hæ-</i> <i>morrhages,</i>	206
Longævity, <i>how promoted by intermitting fevers,</i>	260

## M.

Madness <i>from intermitting fevers, cured by restora-</i> <i>tives,</i>	334
——— <i>from a severe phrenzy,</i>	420
——— <i>raving or ungovernable, from a phrenzy,</i>	424
——— <i>how relieved by varices,</i>	449
——— <i>how relieved by the hæmorrhoidal flux,</i>	450
Meninges <i>of the brain, the seat of a phrenzy,</i>	441
Mesentery, Schirrhous <i>of, from intermitting fevers,</i>	258
Metastases, <i>instances of them in acute diseases,</i>	402
Miasmata, <i>contagious, how they dissolve or thicken</i> <i>the blood in putrid fevers,</i>	22

## N.

Nausea, <i>indicates vomiting, for the cure of intermit-</i> <i>ting fevers,</i>	309
Nervous Fevers, <i>how known and treated by Syden-</i> <i>ham,</i>	281
——— <i>Diseases, how relieved by the Peruvian</i> <i>bark,</i>	267, 342

## The I N D E X.

- Nitre, *how useful in the cure of ardent fevers,*  
Page 213  
 Nose *bleeding very little, a fatal sign in ardent*  
*fevers,*  
105

### O.

- Obstructions *confirmed by an improper use of the*  
*bark,*  
350  
 ——— *of the mesentery from intermitting fevers,*  
258  
 ——— *of the liver from intermitting fevers,* 251,  
257, 261  
 Opiates, *to be given after vomits in the cure of*  
*intermitting fevers,*  
312  
 Opium, *how it operates upon the nerves and spirits,*  
314

### P.

- Pain, *a cause of difficult respiration in fevers,* 43  
 ——— *in the neck, a sign of hæmorrhage from the*  
*nose in ardent fevers,*  
110  
 ——— *in the head, a sign of phrenzy approaching in*  
*fevers,*  
389, 444  
 ——— *in the breast and feet, how it relieves a*  
*phrenzy,*  
453  
 ——— *periodical, removed by intermitting fevers,* 262  
 Parotides, *either critical or fatal in ardent fevers,*  
168  
 Periodical Returns *of intermitting fevers, whence,*  
272  
 Peripneumony, *the cause of a fatal phrenzy,* 436  
 ——— *arising from ardent fevers,*  
175  
 Peruvian Bark. See Bark.

Pestilence,



# The I N D E X.

Pestilence, <i>opposite to the nature of intermitting tertians,</i>	Page 263
Petechial Fevers, <i>why attended with hæmorrhages,</i>	21
Phlebotomy, <i>less useful than natural hæmorrhages for terminating fevers,</i>	108
Phrenzy, <i>true, the signs of it,</i>	388
—— <i>original and symptomatic, defined,</i>	382, 401
—— <i>symptomatic signs of it,</i>	400
—— <i>symptomatic causes of,</i>	443
—— <i>from an obstruction of the blood in a pleurisy,</i>	404
—— <i>in the small-pox malignant,</i>	437
—— <i>true or original signs of,</i>	388
Plague at Breda, <i>appearance of the blood in it,</i>	21
Plethora, <i>an antecedent cause of phrenzy,</i>	391
Pleuritic Patients, <i>suffocated, to avoid pain,</i>	43
Pulse of the arteries <i>considered as a sign,</i>	36
—— <i>of the arteries, how to be examined,</i>	37
—— <i>weak, what it denotes,</i>	38
—— <i>rebounding, a sign of hæmorrhage from the nose,</i>	117
—— <i>hard, a sign of phrenzy approaching,</i>	415
Purgatives, <i>when useful for the cure of intermitting fevers,</i>	306
—— <i>dissolve and change the humours before evacuation,</i>	319
Purges, <i>destroy the efficacy of the bark in the cure of intermitting fevers,</i>	364
—— <i>how to be used after the cure of intermittents,</i>	339
Putrid Fevers, <i>their nature,</i>	16
—— <i>signs of them,</i>	25
—— <i>their kinds,</i>	31
—— <i>their prognosis,</i>	33

# The INDEX.

## R.

<i>Regimen, proper for the cure of intermitting fevers,</i>	Page 297
<i>———— to prevent the return of intermittents,</i>	355
<i>Respiration, considered as a sign in fevers,</i>	39
<i>———— difficult in fevers, whence,</i>	42, 82
<i>———— irregular, a fatal sign in fevers,</i>	44
<i>———— cold, a fatal sign in fevers,</i>	46
<i>Rest of body and mind for the cure of fevers,</i>	11
<i>Restlessness, a bad sign in fevers,</i>	46
<i>———— a symptom of ardent fevers, whence,</i>	90
<i>Returns of intermitting fevers, how prevented,</i>	335,
	373
<i>Rheumatism, scorbutic, from the bark,</i>	352
<i>Rigors how critical in ardent fevers,</i>	176

## S.

<i>Schirrhus Viscera from intermitting fevers,</i>	247,
	257
<i>Scurvy from the blood, vitiated by intermitting fevers,</i>	255
<i>Sickness and vomiting, whence in ardent fevers,</i>	88
<i>Sight, dimness of, a sign of hæmorrhage in ardent fevers,</i>	112
<i>Sleep, disturbed, a sign of phrenzy,</i>	392
<i>Small-pox, state of the blood in it,</i>	22
<i>Spirits, their motion disturbed, the cause of intermitting fevers,</i>	230
<i>———— an inactivity of them an immediate cause of intermitting fevers,</i>	263, 267, 280
<i>———— injured by contagion, the cause of intermittents,</i>	292, 296

Spitting



## The INDEX.

Spitting <i>thick and critical in ardent fevers,</i>	Page 158
Spotted Fevers, <i>livid or purple, of a bad kind,</i>	63
Squinting of the eyes and face, <i>why a bad sign in fevers,</i>	58
Stools, <i>white, what they denote in acute fevers,</i>	407
Sudorifics, <i>how they cure intermitting fevers,</i>	321
————— <i>when dangerous in the cure of intermittents,</i>	324
Sweating of the face only, <i>a bad sign in fevers,</i>	166
————— <i>how to be managed for the cure of intermittents,</i>	321, 324
————— <i>Fever of Dr. Cajus, described,</i>	3
Sweats, <i>critical in ardent fevers,</i>	157
————— <i>how they terminate intermitting fevers,</i>	239, 242, 331
————— <i>weakening, how they arise from intermitting fevers,</i>	248

## T.

Tears, <i>involuntary, why a bad sign in fevers,</i>	60
Teeth, <i>gnashing of them, fatal in a phrenzy,</i>	434
Thirst, <i>unextinguishable, a sign in ardent fevers,</i>	87
Tongue, <i>considered as a sign in ardent fevers,</i>	83
————— <i>black, what it denotes in fevers,</i>	405
Topical intermitting fevers, <i>instances of</i>	282
Trembling, <i>why a bad sign in fevers,</i>	56
————— <i>with delirium, fatal in ardent fevers,</i>	174
————— <i>fatal in a phrenzy,</i>	432

Varices,

# The I N D E X.

## V.

Varices, <i>how they relieve a phrenzy and madness,</i>	Page 449
Vernal Intermittents, <i>their nature and cause,</i>	220
————— <i>easily cure themselves,</i>	299, 374
Viscidities of the blood, <i>an immediate cause of inter-</i> <i>mitting fevers,</i>	264
Vital Functions, <i>how altered in a phrenzy,</i>	415
Voice, <i>squeaking, an ill sign in ardent fevers,</i>	92
Vomiting, <i>how caused in ardent fevers,</i>	88
Vomits, <i>when useful for intermittents,</i>	326
————— <i>and purges, how to be given for the cure of</i> <i>intermitting fevers,</i>	311
————— <i>operate upon the nervous spirits,</i>	314

## U.

Urine, <i>its nature and use,</i>	29
———— <i>its conditions in fevers,</i>	50
———— <i>crude, a bad sign in continual fevers,</i>	54
———— <i>critical in ardent fevers,</i>	157
———— <i>black, a fatal sign in ardent fevers,</i>	262
———— <i>bloody, a fatal sign in putrid fevers,</i>	164
———— <i>why crude in the cold fit of intermitting fevers,</i>	236
———— <i>lateritious, in the end of the hot fit of inter-</i> <i>mitting fevers,</i>	240
———— <i>crude and watery, a sign of phrenzy approach-</i> <i>ing in fevers,</i>	408
———— <i>with a black cloud, a sign of phrenzy,</i>	409

Watchfulness,



# The I N D E X.

## W.

Watchfulness, <i>why bad in fevers,</i>	Page 62
Watchings, <i>presage a phrenzy,</i>	395
Watery Urine, <i>why bad in fevers,</i>	54
Weariness, <i>a bad sign in fevers,</i>	46
————— <i>a symptom in ardent fevers, considered,</i>	90

*The* END of *the* SEVENTH VOLUME.





















